VALK MAILING

a publication of Valk Welding

21th year - 2021-2

"Giving our customers the best quality"

JOSKIN

"Using welding robot automation to achieve healthy growth"

Vlemmix

valk welding

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Dear reader,

You have before you yet another issue of the Valk Melding, in which we bring you up to date on recent developments at Valk Welding and our customers.

In March 2021, we modestly celebrated our 60th anniversary with all employees via an MS Teams meeting, fortunately there are now more opportunities for a physical meeting. At an anniversary you usually look back and forward.

We have now been active in welding technology for 60 years and have 43 years of experience in welding robots.

In February this year, I had been working at Valk Welding for 25 years and we have therefore also been active in the off-line programming of robots for more than 25 years. DTPS is now used daily by many employees at Valk Welding and its customers to control thousands of welding robots.

If we look ahead, we see a strong growth in production automation at our customers, which translates into a well-filled order book and the expectations are that this will continue. We see that the ageing of the population worldwide means that there are fewer professionals available, so we will have to use one professional to work for several people. (Welding) robots and cobots can help here and, with the right guidance, perform good craftsmanship.

I therefore call on young people (and the current welders) to opt for the wonderful profession of (welding) robot specialist. This will give you a varied job with continuous challenges and pleasure when a beautiful solution is realised by you, your team, and the technology.

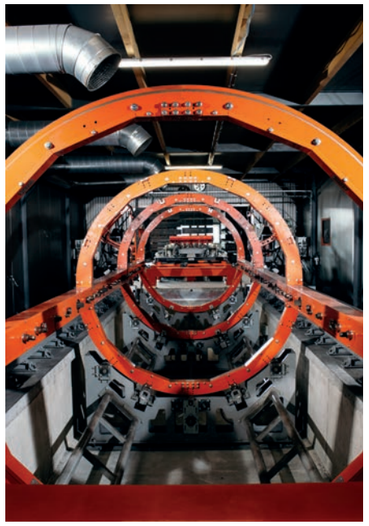
This was the reason for me to choose this profession and after 25 years it is still the reason to continue with passion.

Adriaan Broere (CTO)

Watch the video

Using welding robot automation to achieve healthy growth

Vlemmix markets Tiny House trailers, machine transporters and boat trailers with volume production at competitive prices. As a result, the company from Asten in Brabant has become one of the largest boat trailer producers and a market leader in Europe for its Tiny House trailers. To meet the increasing demand, Vlemmix invested in welding automation last year. With a large system in which the trailers are completely welded with two welding robots. The trailer builder was thus able to significantly increase capacity. At the beginning of this year, two additional welding robots were included in the system, reducing the average cycle time of a trailer to twenty minutes instead of fifty. ''Where we came from an annual production of 3,500 pieces, we want to go to a production of 6,000 pieces per year,'' according to Bas Vlemmix, who is responsible within the family business for programming the welding robots and the entire cell.



Through over a hundred sales outlets spread throughout Europe, Vlemmix sells not only boat trailers but also trailers for Tiny Houses which are up to ten meters in length. ''That is where the biggest growth is at the moment. Our aim is to be able to weld these together in about twenty minutes, and standard boat trailers in eight to fifteen minutes. That's a gigantic time saving when you consider that our trailers used to be welded by hand in six to seven hours. Before that happens, we still need to adjust a large part of the programs, because we are now welding with four welding robots instead of two,'' says Bas Vlemmix.

Manipulated in a carousel

The plate and tube parts for the trailers are stretched manually in one of the three jigs outside the welding robot installation. All models of trailers can be welded on only three jigs in the welding robot plant. Inside the installation, the jigs are fully rotated in a carousel in half a minute, so that the robots weld in a continuous process, both the bottom and top of the trailers are completely welded in one go. ''Entry and exit of the jigs from the welding robot installation takes one minute. Due to the short changeover times, the welding robots achieve a high duty cycle. In two shifts we currently weld an average of twenty trailers a day'', explains Bas Vlemmix.

Shortening delivery times

Whereas previously more than ten people used to weld trailers manually, Vlemmix has done so with three people since the welding robot installation was commissioned. ''Most importantly, this has allowed us to increase the output to meet the high demand. The purpose of the capacity increase is to reduce the average delivery time''.

Short lines in the supply chain

Vlemmix outsources both the sheet metal and the tube cutting work to local suppliers. Their production systems are optimally equipped for this. We have a large stock of parts in order to be more flexible. We do the assembly and welding, after which the trailers are galvanized externally''. Final assembly takes place in the adjacent hall.

Quality improvement

''With the automation stroke, we have not only been able to greatly increase the output. The welding robots always do exactly what is programmed, which results in every weld being the same and having the same tight weld appearance, which also means we have made a big quality improvement," Bas Vlemmix summarises. Kuunders Technoworks engineered, designed, and realised the construction of the welding carousel including jigs. Valk Welding took care of the integration of the welding robots.

www.vlemmixaanhangwagens.nl

IQ Metal, master of excellence in robotic welding

With over 300 employees, the Danish supplier IQ Metal serves industrial OEMs who require high quality tolerances on their products. Consequently, IQ Metal has extensively automated and optimised its production processes in the field of sheet metal working and welding. "In addition to high productivity, this results in consistently high product quality, which makes us competitive worldwide and has built up a lasting relationship with our customers," says CEO Bo Fischer Larsen.

What requirements does IQ Metal set for robotic welding?
IQ Metal supplies components, sub-assemblies, and complete products to sectors such as wind energy, offshore, transport and machine construction. Partly due to their scale, the company can invest in the most high-quality production systems, with which it has achieved a high degree of efficiency. In the field of robotic welding, the supplier has seven Valk Welding robots and six additional robots of different brands.

Applying welding robots successfully
"It took several years before we really managed to take full advantage of the welding robots. If the robot does not move, it does not make any profit. Every minute the robot is not welding is a waste. Today we can finally say that we are mastering the challenge in robotic welding, with 13 welding robots we have extensive experience in utilising the technology," says the CEO.

Why Valk Welding?
Bo Fischer Larsen continues: "Everyone can deliver a robot for welding. But if you want to take full advantage of the options you have today, you need full integration between robot, welding machine, peripheral equipment etc., which is handled by most of the robot suppliers. But when you are about to combine everything together including the parts to be welded inside a virtual environment, it becomes more difficult and the potential welding robot integrators who can manage this becomes fewer. Because even if most potential producers of robotic welding equipment claim to master this, it is our experience that Valk Welding was one of the very few who do. Today we are programming all weldments in an offline 3D environment inclusive of welding parameters. There is full 2-way communication between the offline 3D programming software and the welding robot, meaning all adjustments executed within the robot cell are also updated within the external storage of welding programs."

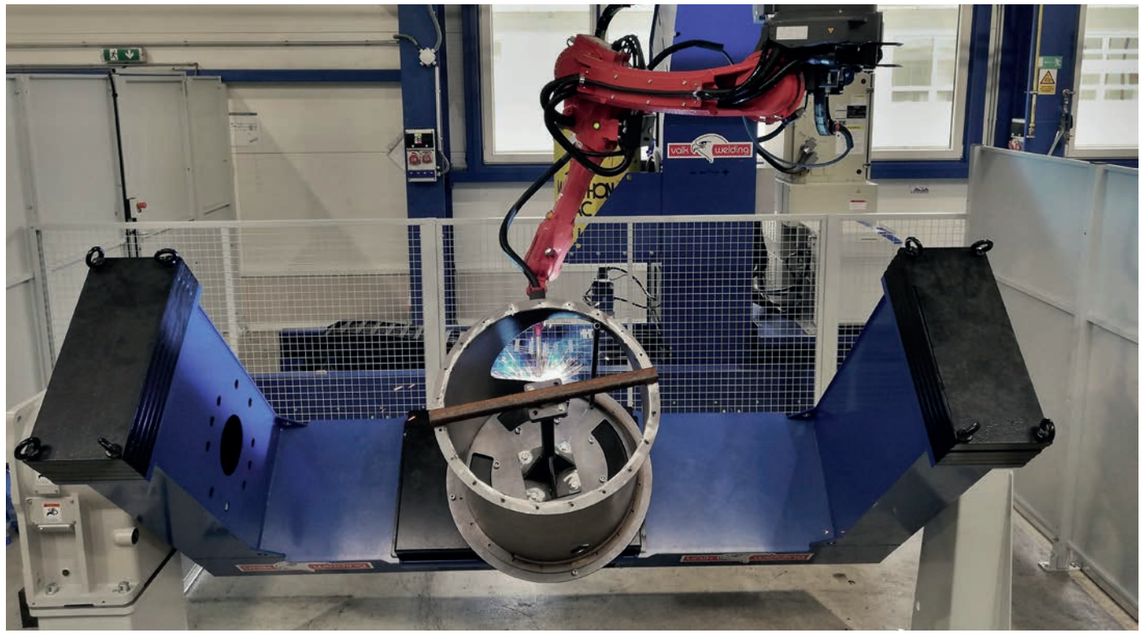
Programs can be used at any station
"Each Valk Welding cell, every station and every separate welding jig is measured in and stored within the virtual welding environment, and as soon a certain jig is related to an individual working station and combined with a welding program, all the specific parameters are loaded as well. In practice this means that we can load and weld every welding jig and program in any of our 16 welding stations and obtain the exact same quality of welding."

Data log
"We must comply with a lot of additional requirements for high demanding customers and industries. All welds must be executed according to certified welding procedures, and we must prove that every welded item was complying with the exact welding procedure. It means, if a customer returns to us after some years and claims that a product delivered has failed, we can prove according to which specifications the part has been welded. This includes the specific order, the certificate of the base material and proof that we have adhered to the welding parameters of the welding procedure, including Amperage, the speed of the welding wire, etc. Valk Welding has made that possible."

"In Valk Welding, we have found a supplier that is able to supply everything that counts, so not only the hardware, but also all invisible functions. Thanks to the Valk Welding solutions, all our robots are connected to an Industry 4.0 network, for the management of OEE, traceability, 3D offline programming, etc. As a closing remark, Valk Welding is among the few welding robot suppliers which is specialised in welding only. Most of the other suppliers of welding robots are suppliers for all other branches and services too. Valk Welding is a specialist in welding, which they manage very well," concludes Bo Fischer Larsen.

www.iqmetal.com

Read more



Proven technology for welding boiler bodies

The company Spanner SK, k.s., from Považská Bystrica, is a company with specialised custom production in the field of metalworking. Also forming part of the German Spanner Group with more than 60 years of experience in the engineering industry. Today, it deals with complex sheet metal processing, production of welded assemblies and turnkey assemblies - from design to final product. It is also working hard to produce products under its own brand - the results of its own research, development, and design - and to succeed with them on at least the European market. This is matched by massive investments in the company's development. One of the most recent is the robotization of welding processes by Valk Welding.

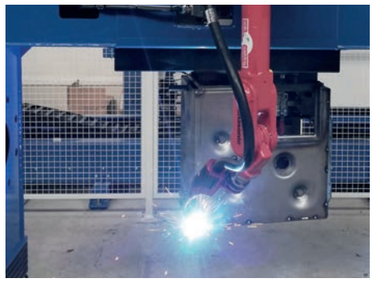
Welding as the basis for production

According to the director of Spanner SK, Patrik Lišaník, about 95 percent of the local production is exported, mainly to Germany and Austria. Most of the production is destined for the energy, waste management, wood processing and construction industries.

Typical products of Spanner SK's piece or small-lot custom production are biomass boilers, heat exchangers, components of filtration systems, packaging equipment or equipment for waste collection, sorting and recycling. "We process, weld and assemble sheet metal offering either finished products or products in various stages of development. Almost all final products and product parts contain welded assemblies, which is why we say that welding is the basis of production for us and represents the bulk of our added value," explains the company's motivation to invest in the development of welding technology. He adds that part of the reason for automating welding is the long-standing shortage of welding personnel. "We need highly skilled people, and we have them, but it is a problem to find new ones. Being in Považská Bystrica, where there are several dozen other companies employing welders, the market is exhausted," adds Mr Lišaník.

Valk Welding made the most responsible offer

Spanner SK commissioned three established companies to carry out studies for a robotic welding supplier. However, the final selection of the technology supplier was not difficult in the end, according to P. Lišaník. "The offer from Valk Welding was, simply put, the most technically responsible. From the beginning, communication between us was open and we considered the solutions that Valk Welding presented to us to be reasonable



and of high quality. It was very important to us that they had implemented applications in similar types of operations to ours. The competitors lacked this, and they presented us with some references, but these were more oriented towards large series or, for example, welding in the automotive sector. Valk Welding was also able to prepare product samples for us very quickly at their facilities in the technical centre in Paskov. They showed us that it is possible with their technology. Competing companies didn't offer this, they didn't really have a workplace where they could do this. This was one of the main reasons why we chose Valk Welding," says Mr. Lišaník, director of Spanner SK.

According to Mr. Lišaník, the actual implementation of the robotic welding workplace did not take long. From the delivery of the technology to the handover of the workstation took a week, and within two weeks the first pieces were welded. "Deadlines were met, training for people was organised, even though everything was complicated by the pandemic situation," he says.

Second robotic workstation within a year and a day

The welding gantry workstation at Spanner SK consists of a Panasonic TL-1800WGH3 industrial robot with integrated welding power supply. The robot is suspended on a stand - a gallows that moves along an eight-metre-long track. The robot can thus operate two workstations. One station houses a two-axis positioner, where more complicated products, mostly cubic in shape, are welded, while the other station is single-axis and clamped, where longer weldments up to 4.5 metres long can be welded.

"We have tried to make the entire workstation as versatile as possible so that we can use robotic welding for as many of our products as possible. We have therefore deliberately oversized it partially, both in terms of weight and dimensions," explains P. Lišaník about the concept. The robotic workstation has been in full two-shift operation since October 2020 and the experience gained during that time confirms the correctness of the decision to robotize and also the choice of Valk Welding as supplier.

"Welding with a robot is roughly three to four times faster compared to a human, if we mean the net welding time," says Mr. Lišaník, adding that this allowed the welders to be relieved of some of the routine and physically demanding welding operations. "We have moved skilled welders to activities that the robot cannot perform. The original number of welders has not changed, but rather we want to increase the number of welders - within the limits of the market. A significant benefit is the significant reduction in the welding error rate. These types of welds are tested under pressure and the tests have shown us significantly better results with robotic welding than with manual welding. The more or less constant high quality is one of the biggest benefits of robotic welding," he explains.

The overall satisfaction is perhaps best illustrated by the fact that in June 2021 Spanner SK has signed a contract to supply a second robotic installation from Valk Welding, this time specialising in heat exchanger welding. It should be ready in the autumn of this year. According to Lišaník, Valk Welding once again submitted the offer with the best price/performance ratio.

New possibilities with offline programming

Robotic welding has a wider dimension at Spanner SK, given the company's development plans. Only time will tell whether the second robotic workplace will be the last for a long time, according to the company's CEO.

"It will depend on the workload and how busy the company is with custom production. We are opening doors to other customers and perhaps even to larger series. Even to those that we have not done so far because of lack of capacity or because of the price. It's usually the case that when you have a new machine, you're first happy that it runs, works without problems, and then it turns out that it has created new opportunities for you - creating new orders and customers. This was also the case with Valk Welding's first robotic workstation. The customer has increased the volumes we have to produce for them many times over. Without robotisation it would not have been possible, the capacities were limited," says P. Lišaník.

Currently, Spanner SK is focusing on offline programming. "We have started to use it to an increased extent only recently, when we got fully acquainted with the new workplace and mastered the robot functionality, which was new to everyone. Our goal - also in connection with the second welding robot ordered - is to prepare programs for our entire production, as if for stock. The programmers are already working on it so that we will be ready when the repeat order comes in. Because we are a custom small-batch production facility, we know that even an order with five or more pieces is already worth moving to a robotic workstation. And I think this is the only way to go in the future," concludes Mr Lišaník.

www.spanner.sk

LAG deploys welding robot on bulk truck line

Prompted by a shortage of professional welders, commercial vehicle manufacturer LAG, from Bree, Belgium, to take the step two years ago to automate welding of aluminium tanks. Together with Valk Welding, LAG has optimised the welding process at a number of crucial points where, after a start-up period of some months, the welding station forms a reliable link in the bulk truck line. “Now that the robot takes care of the mundane welding, we can use our professional welders for more complex welding. With this, we produce more welding work with the same number of employees,” tells Manufacturing Engineering Supervisor Gareth Bonnell, Process Engineer Jos Clijsters and Manufacturing Manager Leon Bokken.

LAG builds about 300 tanks a year in a large number of variations over this production line. Previously, these were manually welded at various stations. The move to line production, where the tanks are fed on a rail in a fixed cycle time past each station for a specific operation, meant a change in the design and the preliminary process for LAG. Each operation must be equivalent for each type at all times, was LAG’s goal.

What did that mean for welding?
More welding jigs were needed in order to use a welding robot to weld the front, back, cylindrical tube, reinforcing ribs and manholes of the tanks. Gareth Bonnell: “In addition, a welding robot doesn’t consider large gaps in the weld, therefore you have to be more aware of tolerances. That meant we had to adapt the preliminary process to make sure the gaps were within the tolerances.” Adaptive welding has since been developed and marketed by Valk Welding in the form of “Arc Eye Adaptive Welding”.

High reliability
LAG asked several robot integrators to be able to provide a large installation in which the aluminium tanks could be robotically welded with high reliability. “After all, stoppage of welding production means that the entire line would then come to a standstill”, Gareth Bonnell emphasises. “Valk Welding, with their knowledge and experience in the field of welding robot technology was able to fill in the complete picture, both hardware-wise and software-wise. In doing so, their methodology of offline programming allows line production to not have to be interrupted for programming.”

Valk Welding built a welding robot installation in which the welding robot on a YZX gallows construction moves together with the robot control. The welding fume extraction unit and the welding wire drum moving along with the height displacement over a 17 meter long track to reach all positions optimally.

Read more

Aluminium welding process
“Aluminium is always a somewhat more difficult material to weld, moreover, due to the large distance between barrel and robot torch, the feeding of the welding wire requires the necessary attention. To enable accurate wire feeding, Valk Welding has developed its own solution, where the wire motor is integrated into the robot torch. With this VWPR QE Servo Pull robotic torch, the welding wire can be fed short on the welding seam according to the push-pull principle. Together with the Spiral Weaving MIG process of Panasonic, this has been extensively tested at Valk Welding. The fact that Valk Welding has everything in house, also in the field of welding wire supply, is a strong advantage”, says Gareth Bonnell.

Track welds precisely with Arc-Eye laser sensor
To make it possible for the welding torch to continue to follow the weld seam precisely over long lengths, Valk Welding deploys the Arc-Eye CSS laser sensor which, mounted on the robot torch, scans the weld seam in real time and, if necessary, corrects the trajectory of the welding robot. “Initially, we were sceptical due to the fact that the reflections on the aluminium would interfere with the scanning image, but the Arc-Eye turned out not to be sensitive to this. So, the weld seam tracking works perfectly”.

Effectiveness increased
“Within this line, we can now flexibly produce a large number of variants. Because not all variants have been programmed yet, we are now constantly adjusting programs. Despite this, the effectiveness has been greatly increased because the welding robot has taken over most of the monotonous welding work from the hand welders. With the bulk line we are now at maximum efficiency. We will therefore now also look at how we can do the same for the other lines”, Leon Bokken looks ahead.

www.lag.be

Valk Welding unburdens customers with fast delivery of welding wire

Valk Welding plays an increasingly important role in the sales and distribution of welding wire on the European market. The monthly delivery of welding wire has now grown to over 800 tons. “And that will continue to grow in the coming years”, expects Henk Visser and Peter van Erk, who both know how to relieve their customers with a high level of service. “Loyalty to both the customer and the manufacturer is often more important than the lowest price. And that turns out to be to the customers’ advantage. Despite continued scarcity in the steel market, we are still able to serve our existing customers as desired.”

A high level of service is in the DNA of Valk Welding. A high level of service is in the DNA of Valk Welding. Ever since its breakthrough in selling welding robots in the manufacturing industry, Valk Welding understood that continuity in production is paramount with their customers. “Supply of welding consumables is inextricably linked to that. If you want to play a serious role in this as a supplier, you need to ensure that you can quickly supply welding wire in any material type and thickness. Because manufacturers of welding wire are not equipped to do this, we have taken on this role. Thanks to a large stock and a sophisticated distribution strategy, we have been able to develop into a fully-fledged supplier of welding wire over the past decades”, says Henk Visser, who helped build the department from the ground up.

Stocked

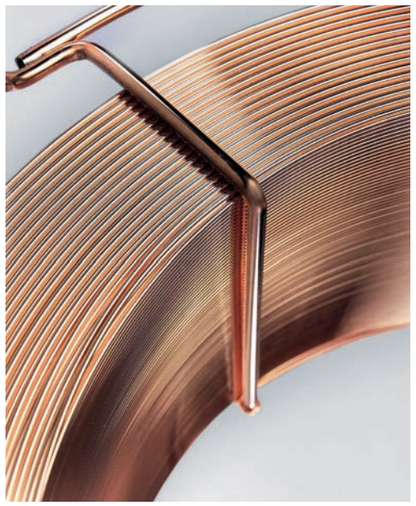
Now that Valk Welding has a presence in many European countries, we can supply most customers from stock. Besides the central warehouse in Alblasserdam, customers are served from own warehouses in the Czech Republic, France, and Denmark. “Because the sales of welding robots are growing especially in those regions, we have invested heavily in facilities there to meet the needs of our customers”, says Peter van Erk, who with over 20 years’ experience in the world of welding wire, has strengthened the department since the beginning of this year to meet the growing demand.

Distinctive

In order to prevent problems in the welding process, a consistent quality of welding wire is a crucial factor. Valk Welding also guarantees an absolute torsion-free unwinding from their drums. This limits wear and tear on the contact tip, enables a higher throughput rate and increases the accuracy of wire positioning at the welding robots. “But in addition to quality, high delivery reliability is also a decisive factor for the customer. Our large volume allows us not only to deliver quickly but also to switch quickly, because as a large customer we get a lot done with our manufacturers,” explains Henk Visser.

Expansion of material types

In addition to the standard welding wires for steel, aluminum, and stainless steel, in recent years the range has expanded to include nickel alloys, (super) duplex stainless steel, and high-strength steel. “From an energy saving point of view, manufacturers of trucks, mobile cranes and agricultural equipment are constructing their products lighter by using high strength steel. With the sale and delivery of the welding wires for high-strength steel from the German manufacturer Fliess, we can meet this demand. Since entering cooperation with Fliess, sales have increased significantly. Thus, we try to meet the market demand in every possible way. Always with the same high level of service!



Non-stop feeding of welding wire

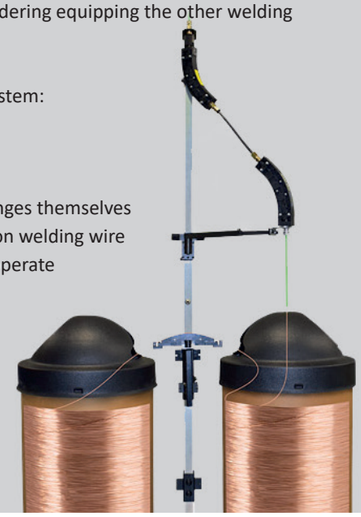
Companies using welding robots with welding wire fed from drums experience the drum change process as a disruption. Since the supply of welding wire is interrupted during the drum change, the welding process comes to a temporary halt. Furthermore, once the supply is restarted, there is an interrupted weld seam that must then be manually touched up. With the endless wire system from Wire Wizard, Valk Welding offers a solution for a continuous, uninterrupted welding process.

The endless wire system provides a continuous, uninterrupted supply of welding wire by connecting two barrels of welding wire. For that purpose, the beginning of the welding wire from drum A is connected to the end of the welding wire from drum B. Wire Wizard has developed a frame with two cones for this purpose, which enables an interference-free transition between two drums. The two wire ends still have to be welded together. For this purpose, the system includes a compact butt-welding machine that connects both parts with a welding tong. The operator can do this at their convenience.

Zuidberg Steel Services welding department has also recently started using the endless wire system to ensure that the welding robots are not interrupted by a wire change during the process. According to Senior Welding Foreman Rudolf Koopman, previously the interrupted weld caused rejects that had to be manually repaired and grinded out. “That always remains visible and takes time. Because rejection is very important to us, we wanted to improve this working method in our quest for operational excellence. We solved that with the endless wire system. Even though we do not connect a new vessel every day, we will earn the system back in a few years. We are now considering equipping the other welding robot cells with this system as well”.

The advantages of the endless wire system:

- Prevents process disruption
- Prevents reject welding
- Prevents post-processing
- Operators can schedule wire changes themselves
- No waste of welding wire, saves on welding wire
- Butt welding machine is easy to operate



Valk Welding Servo TIG robot torch delivers high-quality results

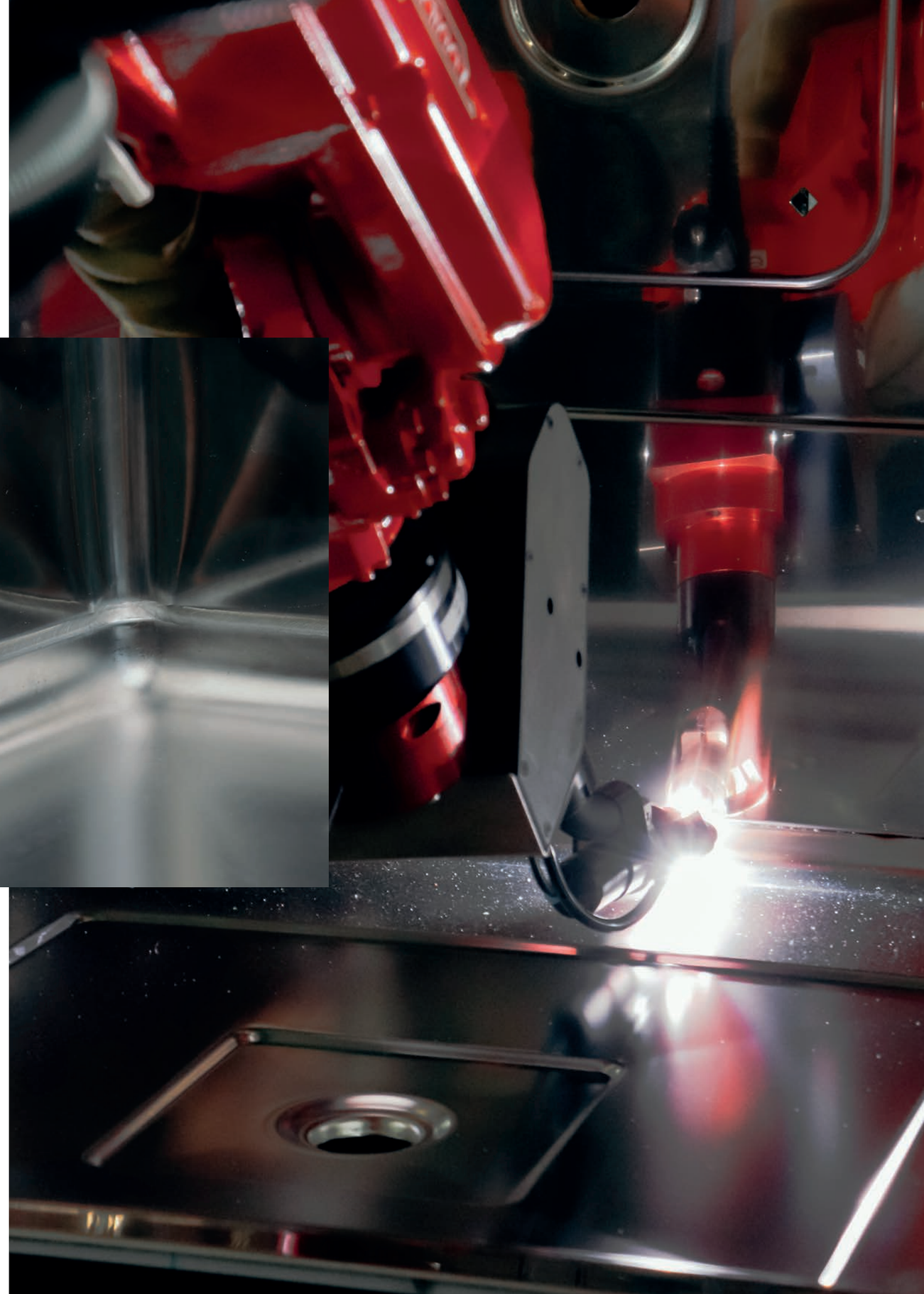
in thin-walled TIG welding with cold wire

For high-quality products, cold wire TIG welding is still the best process for obtaining perfect, spatter-free welds in thin-walled materials. Without the use of a welding robot, a good end result is already almost impossible to achieve. The stability of the wire feed plays a decisive role in this respect. Any movement in the wire package can have a negative influence on the wire supply. Welding robot integrator Valk Welding has therefore developed its own solution to take robotized TIG welding with cold wire to a higher level.

Companies that make products for application in the food, medical, process, nuclear, hydrogen and aerospace industries or pressure vessels and heat exchangers from thin-walled materials cannot afford irregularities, deformations and inclusions in the welding work. In such more difficult applications, the requirements both for tightness and in terms of weld quality and appearance are at a high level. To meet these, these products are robotically welded where a servo driven wire motor provides a constant wire feed.

Despite the use of a servo-driven wire motor, movement in the wire package and play in the wire guide have an influence on the quality and appearance of the weld. In practice, this often leads to problems of material deformation, particularly in bends and where settlements have to be welded against each other, for example in tub-shaped products. In order to prevent this, engineers from Valk Welding have found a solution by reducing the distance from the wire motor to the arc. This has resulted in the robot torch in which the servo drive is integrated in the torch, close to the arc. This eliminates backlash on the wire feed and achieves consistent density and weld quality.

This Servo TIG robot torch has been developed and built in a short time by close cooperation between the engineers of Valk Welding and Valk Welding Precision Parts, which produces all standard and custom made robot torches for the Valk Welding welding robots. The



Servo TIG robot torch uses Panasonic's servo wire motor, which together with the power source is controlled from one CPU. In addition, it is also nice to know that provided the welding torch is changed alone, the user can also weld MIG/MAG and even upgrade to the extremely cold Super Active Wire welding process. The customer will therefore have many possibilities in the future.

As a welding robot integrator, Valk Welding wants to excel in the field of robotization with a focus on welding technology.

Welding robot solves shortage of skilled welders

Rising wage costs and a shortage of skilled welders are forcing manufacturers, such as Northern Ireland's NC-Engineering, producer of Industrial and Agricultural Equipment, to invest in production automation. Director Robert Nicholl, turned to Valk Welding for a welding automation solution. "They were the only company able to offer a flexible automation solution for our high-mix, low-volume production situation. With their expertise in this area, Valk Welding is one of the best," believes Robert Nicholl.

As in several European countries, young people in Ireland are more likely to choose studies over Vocational qualifications. As a result, there is a growing shortage of welders, plumbers, painters, etc. In addition, wage costs in Northern Ireland have risen sharply over the past five years and the supply of welders from middle European countries has been reduced by the Brexit. "For us, that was the moment to invest heavily in, among other things, laser cutting with automatic loading and parts removal, bar feeding to the CNC turning machines and welding robotization. In our search for a suitable robot integrator, we discovered that most providers focus on volume production. In doing so, the flexible welding robot solution offered by Valk Welding with offline programming of small series was a real game changer for us," says Robert Nicholl of the family-owned company. "From the many examples Valk Welding showed and what we saw on the Vimeo videos, their specialism in the field of small volume production was clearly evident."

Welding robot on an FRAME-E setup

TThe total of 76 assembles that NC-Engineering wanted to weld on the welding robot differ in size, complexity, and welding time. "Where one product is welded in 1 minute, another requires 150 minutes of welding time. To find a system suitable for most parts and subassemblies, we ended up with two side-by-side workstations with a clamping length of 3.5 meters in a movable E-frame and a Panasonic TM2000WG3 welding robot on a track. In terms of capacity and capabilities, suitable for robotic welding of most of our parts and subassemblies." With two clamping stations, the welding robot can continue welding while the product is changed in the other station.

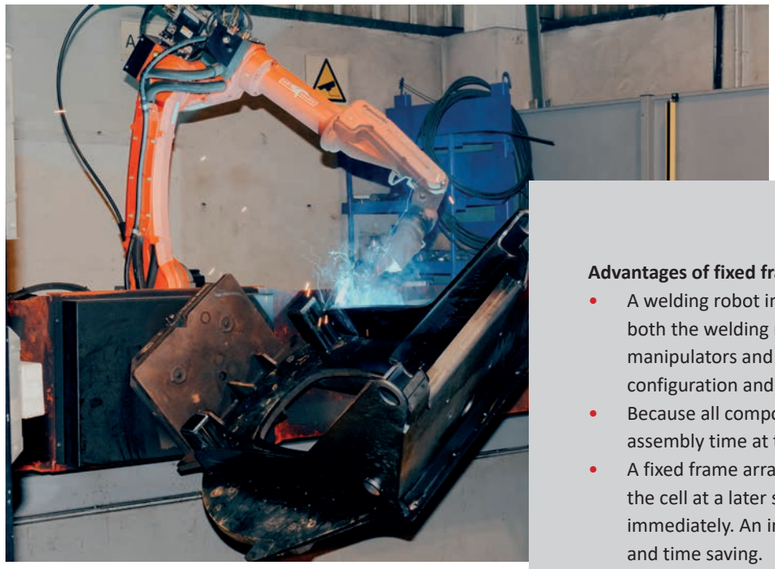
Further expanding capacity

Out of the 150 employees of the family business, 3 employees are fully occupied with the welding robot cell. "One employee is responsible for the offline programming with DTPS, and one colleague is the full-time operator at the welding robot cell on the shop floor. A third employee develops the welding jigs and also takes care of the preparation, so that all materials are present at the welding robot cell on time".

Expanding capacity

Since the deployment of the welding robot cell in 2018, the number of products welded with the robot has grown significantly. "To further expand the capacity, we are now considering investing in a second welding robot installation, where we have chosen an FRAME-H setup. We want to weld the less complex parts on that, so that more space is freed up again for complex parts on the existing welding robot installation.

www.nc-engineering.com



Advantages of fixed frame setups

- A welding robot in a fixed frame setup offers the advantage that both the welding robot and the control cabinet, clamping tables, manipulators and shielding can be mounted as a complete configuration and can be installed at the end user.
- Because all components are delivered in a fixed frame setup, the assembly time at the customer is short.
- A fixed frame arrangement also offers the possibility of moving the cell at a later stage and putting it back into operation immediately. An internal relocation results in a considerable cost and time saving.
- All frames have a torsion-free construction.
- Valk Welding builds standard frames in a C, H, E, T, Z and IT-setup

A virtuose welds in a spiral path

At Lucas G, a manufacturer of agricultural equipment, a robot performs spiral welding on a conical hub. A true virtuoso of complex trajectories, its numerical control simultaneously manages nine axes of movement plus a lateral scan over a few millimetres.

With the cabin closed, the welding robot begins a cycle that will last 65 minutes (compared to 120 minutes in manual welding). The aim of this robotised cell is to join pointed elements together, including a metal spiral on a hollow conical axis. Eventually, this screw, weighing about 400 kg, will be one of the elements mounted at the heart of the Lucas G machines.

The trajectories of the torch are complex because they are alternately carried out on the surface and on the underside of the conical screw with a constant transverse sweep of a few millimetres perpendicular to the progress of the welding. In addition to the six robot axes, the numerical control continuously manages three additional axes, one linear and two rotational, for a total of nine axes.

Before this step, the 15 elements of the conical screw are pre-assembled on a special tooling jig by manually pre-assembled. Then, the tooling and the part are introduced into the cell on the gantry. A Schunk interface ensures precise clamping and positioning of the assembly on short, tapered seats. Once the cabin is closed, the cycle is started.

This cell is currently designed to receive six screw references as well as other elements. Eventually, it will process 25-part numbers for cycle times of between 45 and 150 minutes and a total of 3,000 hours of activity over a year.

Since 1965, Lucas G has been the French specialist in cattle, goat, and poultry breeding. Located on two production sites near Cholet, the company employs 200 people and achieves a turnover of €30M by selling 3000 machines each year.

Deployed in the main breeding countries with 215 distributors, the company has a unique know-how articulated around nine product ranges specialised in the distribution and automatic mulching for farm animals.
The mixers are machines dedicated to the creation of rations loaded with corn, grass, and concentrates. Everything is mixed by a screw to form a homogeneous mixture that is distributed to the cows in the feeding alleys of the farms.

The straw blowers are machines where round or cubic bales are loaded, capable of projecting straw inside the buildings in order to guarantee a clean litter for the cattle, avoiding the risks of diseases or infections.
In the case of the “distributive silage unloaders”, several silage products are introduced into a tank to be mixed and kneaded in a homogeneous way. The machine then moves linearly to distribute the feed to the animals.

These machines are usually driven by a tractor’s power take-off. However, some are mounted on a self-propelled engine. The latest trend is 100% electric units powered by batteries. Once their work is done, these true “robot farmers” return to their base to recharge their batteries.

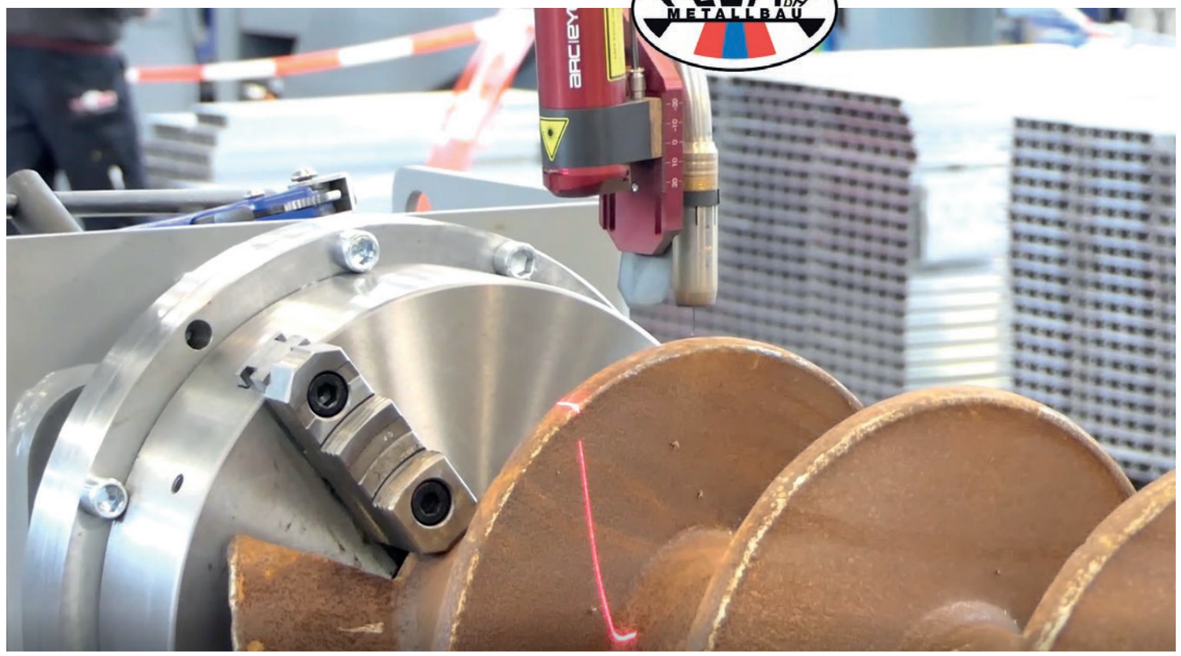
“In our two local plants (16,000 m² of workshops), we operate in two shifts and process 2,500 tons of steel each year, 80% of which is sheet metal between 1.5 and 8 mm. To cut them, we have two laser centres of 4kW and 5kW. Next year, a 6kW fibre laser will replace the 4kW laser. For forming, we have three bending machines, two of which weigh 170 tons and one of which weighs 220 tons, as well as a hydraulic rolling machine capable of bending sheets up to 10 mm, or 8 mm over a length of three meters.

Two CNC saws are used to cut the profiles, while a CNC lathe is used to produce the revolution parts. In addition, we subcontract a large part of the machined components to local workshops, which are generally very well equipped. After cutting, bending, rolling and possibly machining operations, our parts are welded together by means of the Valk Welding robotic cell, dedicated to large sub-assemblies. Received in October 2019, this robotised unit was operational by January 2020.

Finally, to finish our small parts, we have a painting line and a large cabin for our large assemblies,” explains Stéphane Godet, maintenance and methods manager at Lucas G.

And to keep up with the more than 30,000 hours of welding per year, “we still need to modernise our robotic welding equipment to increase our capacity by 50% in order to keep up with the increased production rate of our new product lines,” he adds.

www.lucasg.com



The Arc-Eye camera system detects the contour and controls the path of the robot

Arc-Eye takes over the path guidance

Wear order in segments

Feickert and Fega

The history of the Feickert company began in 1947, when the civil engineer Walter Feickert founded a company for structural and civil engineering. Today, his son Rudolf, together with his sons, manage the company, which is also involved in the field of metal and tool making with two companies. The FEGA company produces adapters, buckets, suspension lugs or other assemblies for earthmoving machines. In civil engineering, the use of the material and equipment is subject to high wear. Here FEGA offers not only new components but also repair and reconditioning. Particularly in the area of augers, a welding robot from Valk Welding has been purchased for wear application and repair welding.

The E-shaped robot system consists of 2 stations, as FEGA wants to process both main tasks as flexibly as possible. In the first welding station, augers of different lengths are welded. For this purpose, the counter bearing can be moved on a rail system along with the size of the product. During welding, 2 wires with different properties are used to apply the wear protection. The Arc-Eye camera ensures that the contour of the spindle and helix is also precisely tracked. Programming is facilitated via customer-specific macros. Since wear on a drill screw is never uniform, Valk Welding has optimised programming to meet customer requirements. Attachments and accessories are welded in the second station. In a rotating-tilting device, the so-called drop centre, the component can be moved effortlessly to all desired positions. Sheet thicknesses are up to 50 mm, and multilayer welding can be set very easily via the software.

Rudolf Feickert, Managing Director of FEGA Metallbau- and Handelsgesellschaft GmbH, describes the purchase and use of the Valk Welding welding robot: “For FEGA, entering robot welding technology was an important step towards automation. The hardfacing or repair welding of tools, could be implemented very flexibly with Valk Welding. The software with macro programming and off-line programming function, which was specially adapted for us, was developed in close consultation with our production department. With the robot from Valk Welding, we can counteract the shortage of skilled workers and are well equipped for the future.”

www.fega-metallbau.de

Wear application of several layers, up to 30 mm

Pictured from left: Rudolph Feickert, Axel Schupp, Marino Kesic, Chris Wettstein.

Giving our customers the best quality

JOSKIN, one of the most well-known brands in agricultural equipment in Europe, with subsidiaries in Belgium, France, and Poland, has more than 14 years' experience with 15 Valk Welding robot systems. JOSKIN Group is far ahead with programming and servicing of their own installations. We asked Piotr Knopkiewicz, responsible for the robot systems in the Joskin plant in Trzcianka, how the welding production is divided between the different production plants and what role the Valk Welding technology is playing in maintaining the high quality of the JOSKIN products.

Every plant is dedicated to specific vehicle productions, so that each factory has its own set of products they weld. This strategy allows the Joskin Group to avoid duplicating production tooling and stocks. Only the welding jigs are produced in Belgium.

15 Valk Welding robots

The first welding robot in the JOSKIN company was installed in 2007. "Currently we have 15 Valk Welding robots: 7 installed in Belgium and 8 in Poland. Overall, the company has 3 types of robot stations: 9 systems dedicated to small, manually loaded parts, 3 systems for medium sized parts and the last 3 systems are for fully assembled trailers. The number of robot welded parts has significantly increased in the last years. Because of more pre-welded subcomponents, more products can be manufactured – which means the main purpose of robotisation is fulfilled. New robot stations boosted production times of selected trailers by about 25%," says Piotr Knopkiewicz.

The power of cooperation

"When there is a decision to move the assembly of some part from one factory to another and it is justified to transfer the subcomponents as well, we can easily send programs between our similar robot stations in Belgium and Poland. It is also possible to write a program for the robot that is in the other factory, which is a great help. We have specialists with years of experience in both of our sites. In case of any damage or unexpected behaviour, we can consult each other to see what we can do to fix the problem. But we're also in contact with the Valk Welding service department. Everyone I have spoken to was incredibly helpful and every issue we had was solved with a tremendous reaction speed."

Latest step forward

There are fields in which the robots show its advantage. Our latest step forward was using the ARC-EYE technology to weld platforms for bale trailers. This trailer is almost 10 meters long and has a couple of welds coming all the way from the front to the back. Welding it by hand used to be both unpleasant for the welder and the weld was being made in a lot of shorter segments. Thanks to the ARC-EYE laser camera mounted on the robot, we can place a firm, clean and long weld on the whole length of the trailer, as the camera leads the torch straight along the gap.

Expanding the robotic infrastructure

In the years to come we want to expand our robotic infrastructure. By increasing the variety of robot-welded parts, more manual welders will be able to work with products that are too complex for the robot. That way we will reach two goals: better quality subcomponents and more manpower for challenging jobs. It is important to optimise the resources the best you can, so this synergy works out great so far.

In conclusion, having an advanced technology by our side helps us to give our customers possibly the best quality products and we will surely continue our cooperation with Valk Welding.

www.joskin.com

Valk Welding starts its own branch in (N)Ireland

The unique solutions of Valk Welding have not escaped the British and Irish metalworking industry. The local integrators which are often focused on the automotive industry cannot provide the right solutions. The demand for highly flexible welding robot systems is only increasing, partly due to the growing shortage of manual welders where Brexit has only accelerated the situation there. Moreover, the DNA of these companies is very much in line with the vision and strategy of Valk Welding where personal contacts and trust are of utmost importance.

Almost anyone can build a robot installation. But the fact that Valk Welding can deliver the whole package from A to Z, including a lot of welding knowledge, customers experience this as very unique. The complete welding robot installation including all service and training, the complete software package, laser cameras and even welding jigs, welding wires and programming, this all together creates a unique total package, and the customers are completely relieved.
In the short term almost 20 projects have already been delivered with another 10 or so currently awaiting delivery. The demand for new installations is also increasing exponentially.
In order to shorten our response time even further and to be of better service to our customers, we are starting our own branch office with an experienced team.
This step is of great importance to the British and Irish industry and has Panasonic's full support. Valk Welding takes the technology of Panasonic to "the next level" in a unique way which benefits everyone, especially the companies in Ireland and the United Kingdom.

Tradeshows
2021 / 2022

2021

MSV Brno
08.11 - 12.11 (CZ)

4Innovatordays
17.11 - 19.11 (NL)

Sepem Angers
23.11 - 25.11 (FR)

2022

Sepem Industries Rouen
25.01 - 27.01 (FR)

Technishow
15.03 - 18.03 (NL)

Aqua Nederland
15.03 - 17.03 (NL)

Elmia Automation
10.05 - 13.05 (SE)

Global Industrie Paris
17.05 - 20.05 (FR)

Mix Noordoost
18.05 - 19.05 (NL)

For more information visit our website www.valkwelding.com