VALK MAILING

a publication of Valk Welding

20th year - 2020-2

"Robot welding at Olympic level"

Eagle Burgmann

"Valk Welding Precision Parts fully operational"

Valk Welding Precision Parts

Colofon

'Valk Mailing' is a six-monthly publication of Valk Welding that is sent free of charge to all of our contacts. Would you prefer to receive a hard copy of this publication? If so, send an email to: info@valkwelding.com

Production
Valk Welding and Steenkist Communicatie
www.steencom.nl

Valk Welding NL
Staalindustrieweg 15
P.O. Box 60
2950 AB Alblasserdam

info@valkwelding.com
www.valkwelding.com
Tel. +31 (0)78 69 170 11

Valk Welding BE
Tel. +32 (0)3 685 14 77

Valk Welding FR
Tél. +33 (0)3 44 09 08 52

Valk Welding DK
Tel. +45 64 42 12 01

Valk Welding CZ
Tel. +420 556 73 0954

Valk Welding DE
Tel. +49 152 29 109 708

Valk Welding PL
Tel. +48 696 100 686

Valk Welding SE
Tel. +46 510 48 88 80

The welding robot helps to lay the basis for a good kitchen 4–5

Zero-failure thanks to production and process innovation 6–7

Northern Ireland trailer builder last subassemblies in high mix/low volume 8–9

Robots that take care of their welds! 10–11

Complete control over your welding robot systems with MIS 2.0 12–13

Valk Welding Precision Parts fully operational 14–15

Volvo Bussar Sweden rapidly started up with a turn-key solution from Valk Welding 16–17

CNH Industrial improves balance between welding robot and operator 18–19

Weldon - Polish container manufacturer increases productivity 20–21

Robot welding at Olympic level 22–23

Valk Welding CZ starts assembly and training activities for own region 24

Dear reader,

In front of you lies the new Valk Mailing. In this turbulent time, we would like to inform you about the latest developments in both technical and organizational areas within Valk Welding.

The COVID-19 virus has left an irreparable scar throughout the world and has also caused us all to work (or have to work) differently. As we have informed you in the past year about the new organizational structure as well as ownership structure of Valk Welding, all colleagues in their new positions have had an challenging time. Despite this difficult period and the new positions for some of us within the organisation, we as Valk Welding team have managed to endure this period almost unscathed.

As the person ultimately responsible for the results and wellbeing of the Valk Welding Group, I am therefore very proud that the changes we have implemented have led to positive results, making the future of the companies belonging to the Valk Welding Group very positive and prosperous.
We have also taken steps to further implement our independence, guaranteeing the security of delivering components and parts to you as a customer (see article Valk Welding Precision Parts on page 14-15).

It makes me happy to see that the third generation Valk Welding employees and owners can and will continue to expand the strategy which was started 25 years ago. I wish you a lot of reading pleasure with this new Valk Mailing.

Remco H. Valk (CEO)

The welding robot helps to lay the basis for a good kitchen

The company RETIGO s.r.o from Rožnov pod Radhoštěm in CZ is well known in the culinary segment as a manufacturer of top equipment for professional kitchens.
In 1993 the company manufactured its first combi oven in the garage of one of the five founders of the company and since then it has established itself as a manufacturer of culinary equipment. Today, RETIGO s.r.o. is a modern and innovative production company with around 210 employees and is one of the top manufacturers of combi-steam ovens in Europe. It is also one of the last independent specialists in this field in the world.

The most important product of the company are the combi-steam ovens, which are developed and produced directly in the factory in Wallachia, Czech Republic. These machines are mainly designed for professional kitchens and work according to the principle of steam and hot air. The ovens are used in restaurants, hotels and canteens all over the world (up to 80% of the production is exported worldwide, mainly to Germany, France, Switzerland, Norway, Poland, Singapore and Japan).

Retigo is gaining ground in demanding international markets thanks to a combination of top quality combined with favorable prices. The uniqueness of the RETIGO products lies mainly in the all-stainless steel construction of the combi ovens and more clever elements that guarantee safety and perfect cooking results. Thanks to the existence of its own development center, the manufacturer from Rožnov ensures various improvements. Think of the innovations and gadgets such as the use of waste heat, a form of door glass and touch screen. These innovations are incorporated in the new generations and models of the combi ovens, which allows Retigo to take its production to an ever higher level.

Welding of stainless steel with robot
The basic material raw material for the production of the combi-oven is stainless steel. After initial processing by means of cutting and bending, the individual parts of the combi-oven are welded out of the prepared stainless steel semi-finished products. RETIGO currently has two welding robot systems with TIG welding technology for this purpose. While the first welding robot has been in use for more than 15 years, the second has been added relatively recently - in 2018.

Rumen Rusev (Head of Development at RETIGO) says: “The older robot is welding the inside chamber of the combi steamer, but the rapidly growing demand for the company’s products from 2016 to 2018 (at that time the company always recorded a year-on-year growth rate of more than 10 percent) made us invest in a second welding robot that welds other parts of combi ovens. The decision was clear, we had to increase production capacity, but at the same time, we knew we wouldn’t easily find new skilled people. The only chance was to automate the process. The large capacity of the new welding robot therefore allows us to increase production capacity while eliminating a bottleneck in the production of combi furnaces. ”

Technical parameters and good references decide
“In the design and selection of the second welding robot, they of course also approached the suppliers of the first robot. However, we were pleased with the technical parameters of the Panasonic robots offered by Valk Welding. They are at the forefront of TIG welding technology, we took into account, for example, better arc ignition and other advantages. We have been involved in the selection for quite some time and have also included Valk Welding’s very good references. For example, the references of other manufacturers,” explains R. Rusev about the choice of partner for robot welding.

The heart of Valk Welding’s robot welding cell is the Panasonic TM 1800WG3 robot, which, together with two 2-axis L-positioner PD 1000/500 with a turning diameter of 1550 mm, is placed on an E-shaped frame. The welding robot system includes an automatic replacement of tungsten electrode’s .

The robot welds the components of the combi ovens such as the plinth 6/10 C01-2400, the chimney 611 C05-2900, the sink 6/10 C32-2010. According to R. Rusev, the workshop works in two shifts and the capacity of the welding robot is high enough. “We are still working on expanding the number of products made on it”.

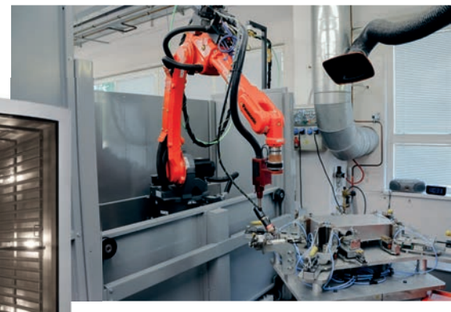
The welding robot is operated by one person, who makes the material and starts the welding program.

The expectations came true
According to R. Rusev, the use of a welding robot with TIG welding technology requires thorough preparation, which was also the case with RETIGO. “It took a lot of effort, it was necessary to make relatively complex moulds so that the individual parts could be correctly positioned during welding. In some cases, we also had to modify the design of the welded parts to meet the requirements of robotized TIG welding. Not everywhere where a manual welder can go, a robot can go,” he explains.

After delivery and installation of the welding robot system in RETIGO, they - with the help of employees from Valk Welding - gradually converted each individual product, which sometimes involved multiple tests or modifications of the products. The geographical proximity of the company proved to be a great advantage at the time. “It is a company from the region, so we expected good service and support, which was confirmed to us. By service, I mainly mean programming support. We had the contractual agreement that Valk Welding’s mechanics would train the operator as part of the installation of the welding cell and at the same time program multiple products so that we could start serial production. As our experience grew, we were gradually able to program the welding of new products with our own capabilities. Now we do it ourselves, but sometimes we use the consultation with the employees of Valk Welding,” says R. Rusev.

And he adds that thanks to Valk Welding’s robotic workshop, the company’s ability to maintain the quality of the produced welds and thus the end products for a long time is repeatedly confirmed.

www.retigo.cz



The welding robot at station 2 uses the torch to first check all the welds of an annealed bottom section and then welds them completely.

Zero-failure thanks to production and process innovation

The Dutch cabin builder Metagro faced the challenge of being able to put together a large number of configurations flawlessly within a single model. Metagro therefore took major steps in production and process innovation. The installation of a new welding robot system, Shop Floor Control and Valk Welding's Management Information System (MIS 2.0) made this possible.

Metagro designs and builds cabins for cranes, vehicles and vessels for OEMs. With an annual production of approximately 2,200 cabins, this supplier is one of the larger specialists in this field. Managing director Raymond Dubbeldam's mission is to keep production in the Netherlands as much as possible by supplying a good product at a good price. To achieve this, Metagro had to be able to build a wide variety within a basic type, while keeping the margin of error to a minimum and also keeping delivery times as short as possible.

Extra welding robot to make growth possible
The manufacturer already had a Valk Welding robot installation on which subassemblies such as walls and floors were welded. In order to be able to grow to 3.500 cabins on an annual basis, Metagro wanted to increase the capacity with an additional welding robot. Cees Wieringa from Valk Welding advised to first look at possibilities to optimize the process, and then to fine-tune the concept for a new welding robot installation.

Towards a fully automated process
A new type of cabin gave Metagro the possibility to adept the manufacturability of the sidewalls, roofs and bottoms for robot welding. Together with the software engineers from Valk Welding, Shop Floor Control and MIS 2.0 were linked to Metagro's ERP system in order to set up control points at different stages of the process. Director of Operations Willem van Zessen: "This has resulted in a fully digitalized process, in which the operator checks the parts list for each subassembly and specifies it on the control system and only then releases it for the welding robot. The welding programs are automatically linked to the correct subassembly, after which the welding robot also checks with advanced sensing technologies whether the offered part matches the part to be welded. Especially with all these different options, the error probability is virtually reduced to zero".

Collaboration
Both parties look back on a good cooperation. Raymond Dubbeldam: "As family businesses from the same region, we have the same no-nonsense mentality to overcome challenges like these. In the start-up phase of the new model, we are now making 2 cabins a day. The objective is to be able to produce 1 cab per hour".

www.metagro.nl

METAGRO

On the dashboard all data comes together, so that every production step can be recorded in the ERP system.

All parts for a wall, floor or roof part are delivered complete on a collection cart.

Northern Ireland Manufacturer invest in high mix/low volume production facilities

A strong shortage of specialist welders was reason for the Northern Ireland trailer manufacturer bmi trailers from Dungannon to take the step to welding robotization. This manufacturer now welds complete walls, floors as well as partitions and tailgates with a Valk Welding robot system. Thanks to the use of macros as part of the QPT programming system, the programming time for single pieces could be drastically reduced. A good example of robot deployment in a high mix/low volume environment.

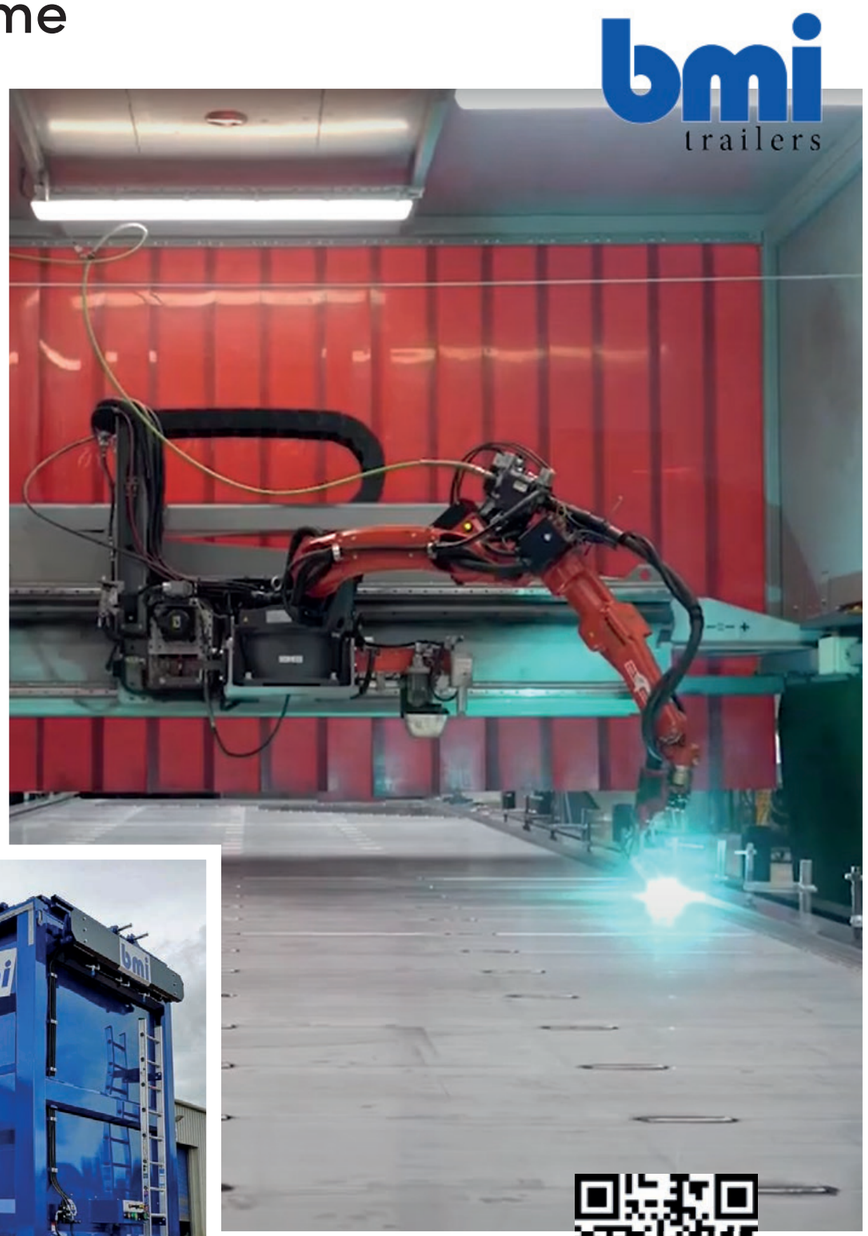
Especially after the Brexit referendum in Northern Ireland and the UK, the shortage of skilled welders in the UK has further increased. For the Northern Irish trailer builder bmi trailers, this was the time to seriously work on automation. But how do you deal with that when the expertise to deliver these kinds of solutions is not locally available? YouTube videos about welding robotization at trailer builders put Operations Manager Richard Ogle on the trail of Valk Welding.

Welding aluminium sidewalls

Richard Ogle saw the biggest challenge in robot welding the aluminium sidewalls. “Due to the expansion of aluminium as a result of the heat input, the position of the weld seam occurs during the welding operation. A manual welder can correct this instinctively, but each welder does so in his own way. The result is therefore never consistent”. During a visit to the Dutch trade fair ‘Metavak’, Richard Ogle presented the demand for an automation solution to a number of robot suppliers. “Only Valk Welding could help us further in this and that was the beginning of a good collaboration”, says the trailer builder.

Welding seam tracking

With the laser-controlled Arc-Eye welding seam tracking system, Valk Welding has proven to be able to weld the welds in aluminium assemblies with the robot exactly and with high quality consistency. The concept for a welding robot system for bmi trailers consisted next to a TM1400 WG3 welding robot on a longitudinal movement of 30 meters, also an Arc-Eye CSS laser camera and integrated welding fume extraction. Eventually, bmi trailers commissioned Valk Welding to also create the programs for different products in order to be able to start production as soon as possible. Prior to commissioning, Richard Ogle and two employees had completed the robot and programming training at Valk Welding in Alblasserdam in order to master all the details of this software.



The robot system can be seen on following link:

High mix/low volume

During the start-up phase, the number of variants in the dimensions of the side walls turned out to be larger than foreseen. To limit the programming work for this as much as possible, Valk Welding used the QPT programming system (Quik Programming Tools) . This software makes it possible to copy parts of programs within DTPS using macros. (DTPS is the successful Off-Line programming system of Valk Welding,) Users with their own product can thus create programs faster. At BMI Trailers this has resulted in the advantage of also being able to weld single pieces and small numbers with the robot.

Capacity and quality increase

Richard Ogle: “After some adjustments in the preliminary process, we had the process fully under control after just 6 months, the weld quality improved significantly and the capacity increased. The welding robot now delivers the output equivalent to the production of 8 professionals and we now weld all the side walls, floors, advances and back doors on the welding robot. We even quickly switch between Aluminium and Steel. The wish is now to also weld the chassis, which we have made externally, on a separate welding robot system from now on. Because of Covid-19 those plans are unfortunately on hold for the time being”.

Richard Ogle: “We are now doing more with the same number of employees.

Excellent Service

The fact that bmi trailers was able to make the automation move to robotic welding so quickly is partly due to the high-quality service support provided by Valk Welding, says Richard Ogle. “For example, an employee from the Valk Welding organization was here for 3 weeks during the start-up phase to optimize the work preparation and answer practical questions. That’s what we call service”!

www.bmitrailers.com

Each trailer must be delivered with the inspection number of the Irish National Road Traffic Department (RDW in the Netherlands). For this purpose, Valk Welding supplied an application with which the robot welds the number on a separate plate, which can be attached directly to the trailer after the inspection.

Robots that take care of their welds!

In Vitré (35), MMO designs, manufactures and markets medical beds. A decade ago, the company chose Valk Welding as partner for two robotic welding cells that are essential for the assembly of the tubular frames of its products.

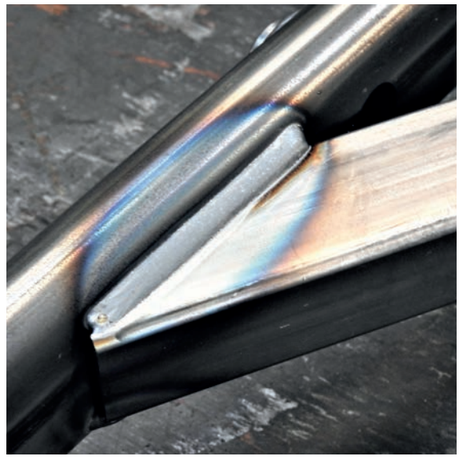
At the gates of Brittany, for more than 70 years, MMO has been designing, manufacturing and marketing healthcare beds and furniture for hospitals, clinics and other health or medical-social establishments, EHPAD (Accommodation for dependent elderly people) and USLD (Long-Term Care Units). About 20% of this furniture is exported.

“We concentrate our production on everything that goes into the patients’ rooms, beds, bedside tables and chairs with a range of products that is divided into three families, short stay medicalized room, long stay medicalized room and psychiatric room. “explains Jean-Luc Gendrot, Production Director at MMO.

Within the ALIAN INDUSTRIE Group, the Breton SME (75 employees) aligns 13 models of beds, some of which, complex, are equipped with electric jacks which animate different functions of the medical bed. In addition, each unit includes multiple accessories (rails, extensions, backrests, supports, etc...) to offer the patient maximum comfort.
The bed frames are made of a tubular metal structure that holds various laminated panels (HPL) from 6 mm to 12 mm thick, which support the bedding.
With an average weight of 180 kg, this robust structure is made up of about ten essential parts to which auxiliary components must be added, depending on the configuration.
The elementary steel tubes, from 1.25 to 2 mm thick, are prepared on an Adige laser cutting center and their shaping on a BLM numerically controlled bending machine. Before passing through a painting booth, the various metal elements are welded either manually on four independent stations or on two adjacent robotized welding cells.

“ Designed in-house, our parts are cut, machined, welded, painted and then assembled to make 100% French healthcare beds. Thus, from January to September 2020, we produced about 70 tons of welded structures, the majority of which were produced using our two Valk Welding robotic cells.
The first robot acquired in 2009 was joined last summer by a second more efficient one, which increased our capacity by 25% with, as a bonus, excellent welding quality. Indeed, our welds (in classic MIG) are not only perfectly smooth, but also completely grain-free and no longer require finishing before painting” continues Jean-Luc Gendrot.

One point of contact for our robotic welding
This latest acquisition integrates a Panasonic TL-1800WG robot equipped with Super Active Wire Process (SAWP) technology, a torch process with an incorporated servo-motor, combining welding quality and cost reduction. Piloted with new software, the SAWP generates a very stable arc transfer with virtually no spatter, whatever the orientation of the torch.
As with the first robot, the second is also mounted on a monobloc E-shaped beam, connecting the two workstations separated by blackout panels. Ultra rigid, this base facilitates the installation and precise adjustment of the assembly.



Each six-axis robot operates, alternately in pendular mode, on the welding zones thanks to its seventh linear axis. This principle allows the operator to load or unload one workspace while the robot is constantly in action on the other, for cycle times that last seven to eight minutes.

For both robots, MMO currently aligns 22 interchangeable welding jigs made in-house in order to optimize the positioning according to the welds to be performed automatically. Depending on the manufacturing orders, these templates are successively mounted on the indexed horizontal axis rotary positioner, which is 2500 mm long by 1200 mm in diameter and identical for each welding cell. This eighth axis is also controlled by the numerical control.

“What is most important with the second robot is that it operates from our existing programming, thanks to the use of “macros” in the DTPS off-line programming software. Moreover, this same PC-based software allows programming without interrupting production in order to study and simulate the welding trajectories with no risk of collisions. What makes our productions safe is that with Valk Welding, we have a single contact for all our robotized welding including operator training, up to the supply of the welding wire (1 mm) delivered in drums of 250 kg”

www.mmomedical.fr

Complete control over your welding robot systems with MIS 2.0

2e generation Management Information System

Companies using several welding robots are looking for more insights into and control over performance, the progress of the process, maintenance and welding data. This data is required to be able to tweak the process on time and to increase efficiency, but also to record the welding quality for each product. Valk Welding's 2nd generation Management Information System (MIS 2.0) was developed for this purpose and provides this solution.

The most important reason why Valk Welding continued developing its Management Information System to a 2.0 version is the strong increase in the number of clients with multiple welding robots. Those clients have created an increased need for more information on production performance.

- When and for how long is a robot idle?
- What is the reason for it being idle?
- What is the exact duty cycle of the robot?
- Do cycle times match the time study?
- How to collect and record welding data?

All this represents information that is used by production leadership for control and management.
The ability to collect and record all welding data provides a solution when it comes to product liability.

Real-time data from the server
Monitoring, data analysis, traceability and data logging are all possible because data is transferred on from the robot controller to the central server in real time. MIS 2.0 visualises this information in the form of graphs and tables. As client requirements differ strongly, Valk Welding developed a system based on widgets that enable the clients to create their own dashboards, specifically focused on what they need to share and with whom, within their organisation

Monitoring
A dashboard with a complete overview of daily, weekly, monthly or annual totals for all systems of number of hours of: duty cycle, welding hours, number of programmes processed, welding-wire consumption, etc...

Robot Analysis

- A complete and current overview of the key performance indicators for every individual welding-robot system.
- A detailed overview per period.
- Daily insight into the log data, including all errors.
- Detailed analysis options.

Product traceability
All data from the server can be retrieved at product level over a specific period.

- This data can be used to check the product quality before it moves on to the next step in the production process.
- A data log is recorded for every product.

The data log contains a series of welding data in chronological order.

Service management
MIS 2.0 will be able to provide information for the benefit of preventive maintenance to ensure critical parts are replaced on time. For example, the amount of pressure on every robot axis to show which axis requires preventive maintenance. This information is available in the database, developed on the required dashboards.

Support from Valk Welding
MIS 2.0 has been developed fully in-house by Valk Welding and is supported directly by the developers. Yet one more strong element of "The strong connection".

Valk Welding Precision Parts fully operational

Valk Welding takes production for robot torches, cable assemblies and shock sensors into its own hands.

Last year, Valk Welding started in Nieuwegein using the production facility Valk Welding Precision Parts in order to be able to produce their robotic torches and cable assemblies in-house from now on. Valk Welding wants to expand the production to 500 to 600 robot torch systems per year and further increase the possibilities of the development and construction of special torches.

The VWPR welding robot torches are a crucial component of the All-in-One Valk Welding robot installations, have been developed in-house and are made exclusively for Valk Welding robot systems. The systems consist of a calibrated pneumatic shock sensor, Quick Exchange longlife cable assembly, patented wire clamping mechanism and a quick-changable gooseneck. (changeable within 5 seconds) The pneumatic shock sensor offers optimal protection in case of a crash due to a programming errors. Moreover, thanks to the calibration of all components, the robot program does not have to be corrected again after a crasch or collision , so that production can be continued immediately.

Independent

Valk Welding has taken over the production of its existing supplier in Nieuwegein (NL). In order to be able to make all components under one roof, all necessary machines for the machining production and 3 employees have been transferred to Valk Welding Precision Parts. Under the leadership of Mark van Driel, Valk Welding's project manager for more than 20 years, production started last November. "This means that we are now 100% independent of third parties for the production of our own robotic torch systems. Only standard consumables such as gas nozzles, wire tips and tip- holders are still produced in large series by the existing supplier".

Special torches

A second important reason for taking the production into their own hands is to further increase the possibilities for the development and construction of special torches. The R&D department of Valk Welding in Alblasserdam develops specific solutions for applications where a standard welding torch is not possible to use or effective. "Now that with Valk Welding Precision Parts we have the production in our own hands, we can respond faster to the demand from the market for special solutions,"

Mark van Driel (l) and Remco H. Valk in front of the 5-axis machining center on which the robot shock sensors are machined .

Precision turning and milling parts for the VWPR robot torches.

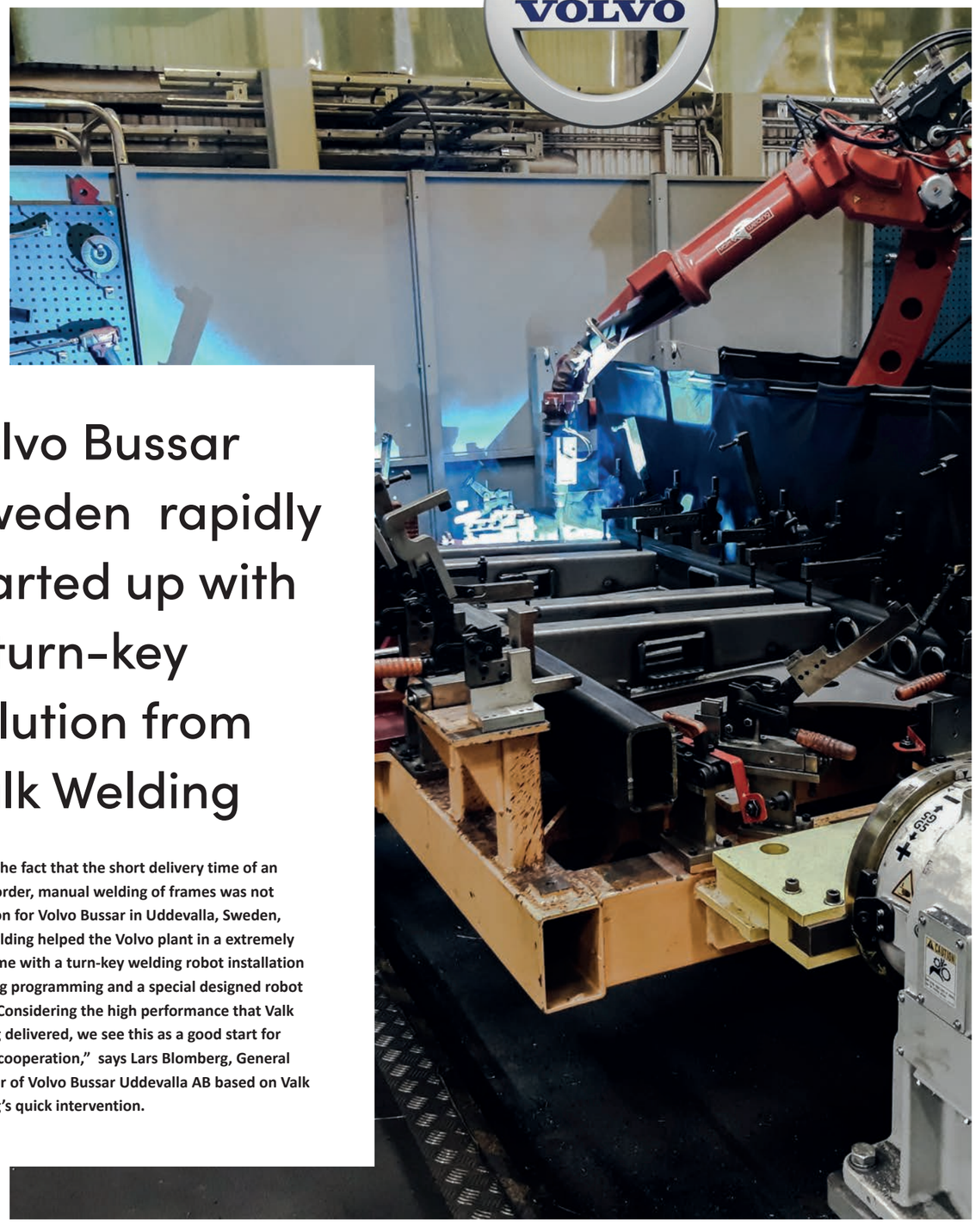
The Quick Exchange longlife cable assemblies are assembled by Valk Welding Precision Parts employees.

John Wijnhoven , turning and milling specialist at the turning cell.

explains Remco H. Valk. "For Volvo Sweden, for example, we developed a special gooseneck, which enabled us to deliver a welding robot installation operationally within a few weeks. Something the current supplier could not do and this was a reason for Volvo to switch to a Valk Welding robot system.

Optimizing logistics

Now that Mark van Driel has production up and running, the focus is on logistics. "We want to reduce the series sizes step by step in order to eventually be able to make only a few pieces build to order. In addition to production for the welding robot installations, we also make the components for the repair of torches and cable assemblies. The complete program includes 900 parts, of which 400 are produced on the CNC turning and milling machines. Automation of the product handling is also an important step in this phase, in order to be able to meet the growing demand from Alblasserdam with the existing capacity".



Volvo Bussar Sweden rapidly started up with a turn-key solution from Valk Welding

Due to the fact that the short delivery time of an export order, manual welding of frames was not an option for Volvo Bussar in Uddevalla, Sweden, Valk Welding helped the Volvo plant in a extremely short time with a turn-key welding robot installation including programming and a special designed robot torch. “Considering the high performance that Valk Welding delivered, we see this as a good start for further cooperation,” says Lars Blomberg, General Manager of Volvo Bussar Uddevalla AB based on Valk Welding’s quick intervention.

Lars Blomberg was on board the Volvo organisation since 2005 after Volvo Bus started the production of bus frames in Uddevalla, Sweden around 1999. When he returned to the company in 2018 after a job change, he found that the same automation concept was still being used as in all the years before. “For all products we used the same concept with two robots and a manipulator without a seam searching and touching systems and offline programming,” says the General Manager.

Valk Welding and Panasonic new to us

Yngve Saarela, an agent for Valk Welding in Sweden, drew Lars Blomberg’s attention to the turn-key systems that the robot integrator had developed for the Dutch VDL Bus Chassis, among others. “Until then, we were not yet familiar with both Valk Welding and Panasonic and what they can do for us in the field of welding robot automation”.

Complete system directly available

“For an export order, we were looking for a solution to be able to weld parts for the bus frames within a short delivery time. This would be feasible with the use of a welding robot. But it should be available at short time. Valk Welding was able to supply a standard system from their stock consisting of a Panasonic welding robot on an H-frame with 2 workstations. Moreover, including the welding programs, it could be immediately operational”. Lars Blomberg continues. “This standard solution offered us exactly what we needed to realise that specific part in the extremely short lead time from order to delivery”.

Excellent support from Valk Welding Denmark

Christian Dahlborg, responsible for the project at Volvo Bus explains: “The tests carried out by Marcel Dingemanse, country manager Valk Welding DK, fully met our requirements. With 100% penetration, the welding quality was perfect and there was no need for post-processing, partly thanks to the MIG pulse process. In addition, the quick touch sensing function and offline programming, using DTPS, ensured a quick start-up phase and better product quality”.

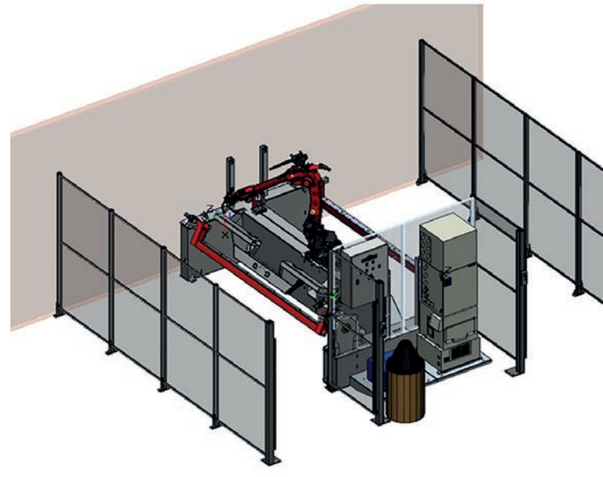
Extended gooseneck

“Another point to solve, continues Christian Dahlborg, was that after welding the top plate, not all positions could be reached with the standard robot torch available. The only possible way to reach those positions is with an extended gooseneck. Because Valk Welding has the production of their robotic torches in own hands, they were able to react quickly. Within seven weeks, both the welding robot installation, as well as the robot torch with the extended gooseneck, and the welding programmes were delivered. After which Volvo Bus could start production within 1 week. This was a perfect performance that allowed us to start welding production of the frames right away,” says an enthusiastic General Manager.

Ready to use

“The concept of a turnkey ready to use solution is a strong point of Valk Welding. Until now, all our welding robot systems consisted of a composition of components from different suppliers, which would have taken much more time to achieve a working end result. Valk Welding has proven itself and their market approach with this. We see this new cooperation with Valk Welding as a good starting point to see what else we can do together in the future”.

www.volvobuses.se



CNH Industrial improves balance between welding robot and operator

With more than 35 years of experience in welding robotization, the agricultural machinery manufacturer CNH Industrial has witnessed the technological evolution from the pioneering phase. Despite the far-reaching automation in the production department MBU3 (welding shop) of the Belgian plant, the managers still see potential in efficiency improvement. To this end, CNH Industrial is taking the next step in the 'World Class Manufacturing' program in the welding department. In this project, CNH Industrial approaches production in a different way, eliminating waiting times, reducing inventories and greatly improving the balance between the robot and operator.

A thorough market research, more than 20 years ago, was the start of a long term collaboration between CNH Industrial and Valk Welding. Since then, 20 Panasonic welding robots have been installed, spread over 4 generations. The first of these are still in use. "Despite the fact that there are no problems, the spare parts are still available (through Valk Welding) and the quality is still good, they are on the nomination to be replaced," says Thomas De Paepe, head of manufacturing engineering welding.

Bart Dedeurwaerder: "Less space required, less waiting times, ergonomically more favourable and a better balance, thanks to World Class Manufacturing".

Bart Dedeurwaerder, Thomas De Paepe and Geoffrey Geldhof of CNH Industrial and Michel Devos of Valk Welding.

Evolution in welding robot technology
When choosing Valk Welding as preferred supplier for the welding robot automation, the possibilities of offline programming were decisive for CNH Industrial at that time. "Valk Welding was the only one at the time who could realize that", reminds Bart Dedeurwaerder, manufacturing engineer welding and robot specialist "Where we could only make the welding moulds when all parts had been developed, we could do that with the DTPS offline programming software during the engineering phase. This allowed us to reduce time-to-market by 6 months with the introduction of a new model. In the meantime, with both DTPS and robot control, we are a few generations further down the line, which has greatly simplified programming and given us more control over the welding process".

What more can you do?
In addition to the question of which parts you could robot-weld, the managers also took a critical look at the production. "If we want to remain competitive, you must not only focus on the technology, but also look at the way you organize production," Thomas De Paepe emphasizes. "We produce in stock, so that the products are ready for assembly on time. Then you have to deal with waiting times. You could eliminate them. We also looked at the non-productive hours during which the operator waits for the welding robot. During that time, the operator could also weld part of the product manually," explains Thomas De Paepe. "This way, we are constantly looking for the optimum balance.

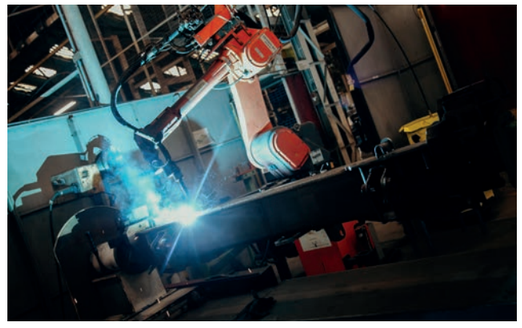
Looking for the balance
"Our task is also to make an x-number of products per day. It's not about more pieces per day, but about flexibility. Does the operator have to be flexible or the robot? What does the welding robot deliver per hour per m2? In addition to the welding robot, can the operator also weld manually? Where is the balance? Those are the questions we asked ourselves within the concept of 'World Class Manufacturing'? We map out the 'losses' and work continuously on improving the production process.

To this end, we have set up a new cell where the CA drum is completely produced. In a 'one piece flow' concept, the work pieces are immediately taken over by the next production step, so there are no more waiting times. Because the employees do both the welding, as well as the balancing, weighing and disassembling, the complete part can go straight through to the final assembly". Advantages: less space required, fewer waiting times, more ergonomic and better balance because the operator of the welding robot in the meantime welds a part manually", explains the engineer.

MIS next step
"As part of rolling out Industrie 4.0 in the welding industry, we also want to have more control over the maintenance of the welding robots. To achieve this, we need to collect all the data so that you can visualize the state of the robots, both technically and in terms of performance. With Valk Welding's Management Information System (MIS) we can give substance to this. Step by step, we get more and more control over the production," according to colleagues Bart Dedeurwaerder and Geoffrey Geldhof.

CNH Industrial draws the map of automation. Witness to this is the purchase of 2 new robot cells, the first of which will be installed this year. The second cell is expected in February 2021. CNH Industrial is ready for the future and continues to invest.

www.cnh.com
www.agriculture.newholland.com/eu/nl-nl



The oldest welding robot in the VR series is still in use after 20 years.

In the meantime, while the operator is waiting for the welding robot, the operator performs a manual welding operation.

Weldon – Polish container manufacturer increases productivity

In order to be able to produce competitively, Weldon, one of the largest container manufacturers in Poland, took the first step towards welding robotization with a used robot system. A lack of a well-functioning welding seam detection system and the ability to adjust easily the welding parameters of the welding robot caused major problems during welding. A few years ago, Weldon decided to purchase new robot welding stations at Valk Welding, equipped with Quick Touch Sensing, Arc Sensor and DTPS off-line programming. which allowed the productivity to be doubled.

Previously, all welding work was carried out by experienced manual welders. “The Productivity through manual welding was low. We first gained experience with a used Kawasaki robot. However, due to the lack of a well-functioning welding seam detection system and the ability to adjust the welding parameters of the welding robot, we were not satisfied with this solution. Not to mention the lack of real time off-line programming. This led to major problems during welding, resulting in a very large number of welding corrections,” says Rafał Jezuit.

Convinced by the welding tests

“From a robotic welding station we requested above all high accuracy and reliability. The versatility of the workstations is also very important to us, because we often produce different parts in smaller series,” continues Rafał Jezuit.

“In our search for a solution, we came into contact with Valk Welding. We hadn’t seen this welding robot integrator before, but we were soon convinced of their competence, the results of the welding tests Valk Welding carried out for us and their professional customer approach.

Quick Touch Sensing search system

“We now have two robotic welding stations. Both systems are equipped with software functions such as Touch Sensing and Arc Sensor. This allows the robot to check the position of the weld and correct the positioning and/or rotation with respect to the original reference point in the program. A very big advantage is that Panasonic’s welding power sources guarantee high arc stability even at low amperages,” adds Rafał Jezuit.

Programming while the robot is welding

Weldon now uses DTPS Off-line Robot Programming Software, specifically developed to enable flexible use of welding robots. “DTPS software is invaluable to us for programming. Thanks to the 3D model of the workpiece to be welded, we are able to create any program for welding the workpiece. Compared to the standard online programming, off-line programming in DTPS is also much faster and more convenient. Because the programming takes place on a PC and not on the robot itself, we do not have to interrupt the ongoing production of the robot, which significantly increases efficiency.

3-day training

“The trainings at Valk Welding are given by a very experienced team of specialists who understand their profession and know literally everything about their product. During the 3-day training, they transfer the knowledge needed to be able to do the welding robot installation, off-line programming and basic maintenance independently. Also after the training we received unlimited support. The experienced consultants of Valk Welding took all the time to help us, most of the problems could be solved by phone or e-mail.

More than doubling your productivity

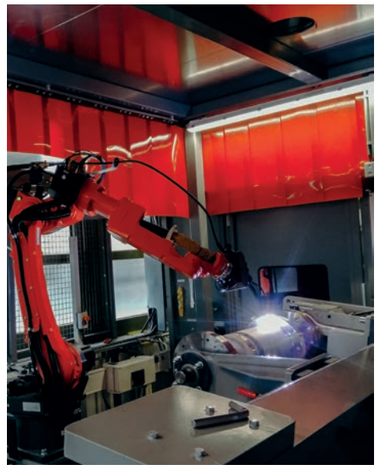
Rafał Jezuit: “Thanks to investments in robotization, we were able to increase the production efficiency of our components. And we have been able to use welders, who used to weld containers by hand, for other welding tasks, which has greatly increased production capacity. For example, a manual welder used to be able to weld around 24 container corners in a single shift. Nowadays, one person operating a welding robot is able to weld 56 or even 64 container corners in 8 hours. As a result, we are now more competitive and have significantly shortened delivery times”.

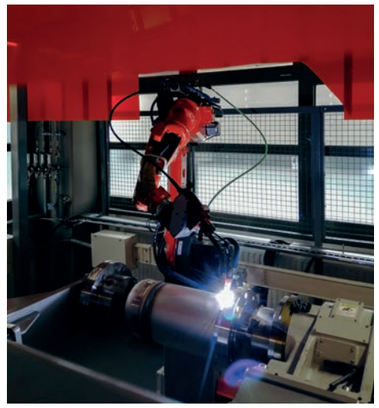
www.weldon.pl

weldon.

Robot welding at Olympic level

EagleBurgmann in search of optimal robot welding of pressure vessels





As one of the leading international suppliers of industrial sealing technologies, the German company EagleBurgmann supplies products that meet the highest quality requirements. Pressure vessels are used in many systems, of which the welding of the final assemblies is a technically sophisticated process. Years of knowledge and experience ensure success. EagleBurgmann has recently taken the first steps towards robotized welding. Because the process has to be extremely reliable and most of the welding work has to be TÜV approved, the manufacturer first goes through an intensive start-up phase. "First go and then walk. The first careful steps have now been taken," describes Michael Bourhenne, Operations Director at EagleBurgmann Germany GmbH & Co. KG, the process.

EagleBurgmann Germany belongs to the Freudenberg Group, a global group with 5,800 employees. With high quality, local service and a high innovative strength, the group provides a comprehensive product portfolio for almost all industrial processes and applications. The pressure vessels manufactured in Erausburg (Upper Bavaria) are a crucial component of sealing systems for the petrochemical and oil and gas industries in particular.

High quality welding process

8 Certified welders master the TIG multilayer welding process with supply wire down to the smallest detail. The pressure vessels thus meet the highest quality requirements. "After all, we have to be able to guarantee 100% reliability for our customers. Our TIG welding is part of the Olympic discipline in this process. Much is demanded of our colleagues. In addition to the skills needed to weld the saucer-shaped bottom parts with 100% penetration, it is also important for the operator or welder to be able to spatially imagine how the product or part is to be welded and how the robot moves.

However, the manual process is difficult and monotonous. If you want to make work easier and increase production capacity, robotization is the only solution. Using robots also offers the advantage of continuity. Unfortunately, robots lack the flexibility of a welder," explains Ludwig Gaar (Operations Manager Manufacturing Supply Systems Machining / Welding).

Selection based on competence

In order to find a welding robot integrator that could robotize this high-quality welding process, EagleBurgmann spoke with various suppliers at the Schweissen und Schneiden trade fair in 2017. "Based on their competence in both robot and welding and Panasonics All-in-One concept (all components are controlled by 1 CPU) we decided to continue with Valk Welding," says Michael Bourhenne. Tailored to the requirements of Eagle Burgmann, a concept was developed based on a turntable solution with 2 C-manipulators and freely programmable turning and tilting functions. The TL-1800 WG3 welding robot has been set up at a working angle to make clamping the large pressure vessels and assemblies as ergonomic as possible.

Looking for optimum

The pressure vessels are made in project-specific series of approx. 30 pieces (engineering to order). Although the basis is always the same, the number of variations is large. Depending on the wall thickness, the bottom parts are welded up to 3 layers to the ø 220 mm round vessel with weld seam preparation. Both parts are always pre-attached in the same position, so that the welding robot can take this into account. Ludwig Gaar: "The challenge is that the temperature of the first weld seam must not be too high before the next layer can be welded. You can take advantage of the cooling period by turning the table and welding on the other workstation. In this way, we are constantly looking for the optimum. The intention is that we can use the welding robot system 10 hours a day at the end of the year and in 2 shifts next year.

Learning and testing phase

All welds are visually inspected in house before being inspected by TüV welding experts. "That process may take a long time, but we had factored it in. We still have a lot to learn and the processes need to be optimized. Here we say: 'First go and then walk'. We are fortunate that our welders are also very interested in the new robot technology. This is a positive sign for the implementation in production, even if it is a subject that still requires change management," concludes Michael Bourhenne.

www.eagleburgmann.de

EagleBurgmann®
Rely on excellence

Valk Welding CZ starts assembly and training activities for own region

In order to serve the Central European market even better and create room for further growth, Valk Welding CZ s.r.o. moved into its new premises in Paskov last year. The new building offers space for offices, warehouse, demo center, technical center, training center and assembly with a total area of 3.500 M2 . From there, Valk Welding takes care of the sales and service of welding robot systems for that region in central Europe. Early this year a start could be made with the assembly of welding robot systems and further expansion of training activities. The intention is that all projects for customers in the Czech Republic, Slovakia, Poland, Hungary and Romania will from now on be built in Paskov, CZ.

All components such as robots, controls and mechanical components will be delivered from the Netherlands and assembled in Paskov, Czech Republic. “By doing so, we want to ensure that the welding robot systems we supply meet the same quality requirements in all markets,” Remco H. Valk explains. “It goes without saying that we cannot realize all these extra activities with the same number of employees. We expect that the current workforce of 20 people will be expanded to approximately 35 to 40 in the coming years. With the extra assembly capacity in the Czech Republic, we now also have the possibility within the group to assemble systems for other regions, should the need arise. This benefits both the flexibility and speed of service to all our customers within Europe”.

Tradeshows

Check here the actual tradeshow calendar