



VALK MAILING

a publication of Valk Welding

24th year - 2024-2

Navigating the 'rough ride' of welding automation: factors for success

Abbey Machinery



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Colofon

The Valk Mailing has been put together with care by Valk Welding. From concept to creation, our team has worked hard to realise this magazine and provide you with relevant information, inspiration and insights into the world of welding technology and automation. For any questions, comments or suggestions, please feel free to contact us at info@valkwelding.com. Thanks to all employees and partners who contributed to the success of this magazine.

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Dear reader,

In front of you is the second edition of our Valk Mailing in 2024, with a first-time honour for me to share a personal message with you since I became a proud member of the Valk Welding Board in 2023.

It is a true pleasure to work in Valk Welding's family business and culture and to experience the strong connection. Working together with customers, suppliers, colleagues, and other partners, is always with an open and collaborative mindset and with a helping hand to each other. Something special if you ask me.

Moreover, we increasingly recognise that in an economy where change is the only constant factor, our customers appreciate us as a trusted partner when they choose to invest in the next automation steps in their production.

Valk Welding is continuously developing and advancing to remain a technology leader and to support our customers in the best and most effective way.

Hence, a brand-new solution we proudly present to you, is RWAAS – Robot Welding As A Service. With this service you get all-in access to our welding robots, including ARP, consumables, and welding wire for a fixed monthly price without an investment upfront.

In this Valk Mailing and on our website we shared the five reasons when and why RWAAS can be an interesting solution for you.


Furthermore, this edition of Valk Mailing is again full of customer stories. Not only does this illustrate the newest automations and technology advancements in their welding processes, but also our customers share how they experienced the strong connection.

A vivid example is the reflection shared by Mr Owen Cavanagh of Abbey Machinery. It nicely shows that welding automation is 'learning by doing' and requires courage, communication, and support. Our team in Northern-Ireland recently expanded and is ready to facilitate more customers on their automation journey in UK and Ireland.

More so, we responded to customer demands and as such we established a branch in Finland, where we are excited to support the metal industry with their high mix / low volume welding needs.

We hope you enjoy reading this brand new Valk Mailing edition!

Sven Akkerman (CFO Valk Welding Group)



Navigating the ‘rough ride’ of welding automation: factors for success

Ireland

Abbey Machinery, a widely known Irish manufacturer of agricultural equipment, is the proud owner of two Valk Welding robot systems. While their robots helped them through a difficult period in the industry and are here to stay, Abbey knows that the road to welding automation is not always a walk in the park. Reflecting on their own journey, they share the challenges they faced during a rough start-up phase and offer advice for others in similar situations.

Back in 2020, the Irish welding industry was facing a particularly difficult time – too much work and not enough welders – that required a cultural shift within companies. Many Irish companies, and those in countless other affected countries around the world, began to look to welding automation for their solution. To stay ahead of the curve, Abbey Machinery started their own journey by adopting a 7-metre long Valk Welding TRACK-FRAME-E MIG concept with two workstations, which has since clocked over 7.500 working hours.

Clear expectations up front

The most important aspect of transitioning to robotic welding is ensuring there are clear expectations in place, according to Owen Cavanagh, of Abbey Machinery. This must be established well before any decision is made. Initially, the company contemplated larger systems, simpler systems and even cobots. “Valk Welding made it easy”, Owen explains. “They understand the robots’ capabilities and requirements, their pricing is clear, and they are not trying to hide anything. It also helps that they only specialise in welding robots. If we had any questions, we got a response back within 24 hours, something we simply did not experience with other companies.”



Programming learning curve

Having installed their first robot for high-mix, low-volume mild steel components, the Irish company planned well ahead for offline programming. Acquiring the right programming skills is an incredibly important aspect of having an effective start, believes Owen, as it can be the slowest and largest part of the work ahead. “We have trained many of our staff through Valk Welding’s remote DTPS training. It has been seamless, but you need to give it the time it needs to avoid running into problems,” he says. Abbey Machinery’s Mechanical Engineer Ahmet Kaya, who took the training himself, adds another important piece of advice: “Before you specialise in DTPS, make sure you have a lot of manual robot experience. This helped me to keep up and even skip steps during the training.”

The jiggling hurdle

Jig design is another challenge in welding automation, notes Owen. “That is why our plan was always to use our existing jigs, tack them and feed them to the robot. Ideally, in a few years’ time, we will no longer be tacking, but that was the stepping stone for us. We are still at that stage, but we are looking to introduce more parts to the robot, and we invest a lot of time in Touch Sensing. As our engineers gain experience and develop more advanced jigs, we continue to reduce these times. That is how you should avoid any regrets you may have later; we are happy where we are now and happy to wait.”

A second robot: continued learning

Around 2022, Abbey Machinery introduced a second, 21-metre-long TRACK-RL robot system for their extremely high variety of tanker barrels and tanker chassis, which are welded in two separate workstations. The system requires minimal jiggling to hold parts, but no jigs are used in setting up for welding. It is equipped with an ARC-EYE weld seam tracking system, Touch Sensing, and Arc Sensing technologies for deviation detection. “Our start-up process was a little slow as welding two products together required some learning,” explains Owen, “but the technology is easy to use and offers possibilities that other companies could not. For companies starting out in automation, it is great that some features even are plug-and-play.”

Motivated to learn every day

To overcome all these obstacles, Abbey Machinery stresses the importance of organisational enthusiasm for welding automation. Getting their team on board without resistance was crucial to getting their process off the ground: “We are lucky, but we are still working through it. Every day is a school day, and we learn from our mistakes and experiences, which we would share with other Irish companies interested in welding automation. A lot of them are concerned at first, questioning whether a robot will do what they want it to do. Based on our experience, I can confidently say: yes, it will.”

www.abbeymachinery.com



DTPS

“Every day is a school day, and we learn from our mistakes and experiences, which we would share with other Irish companies interested in welding automation.”

- Owen Cavanagh of Abbey Machinery

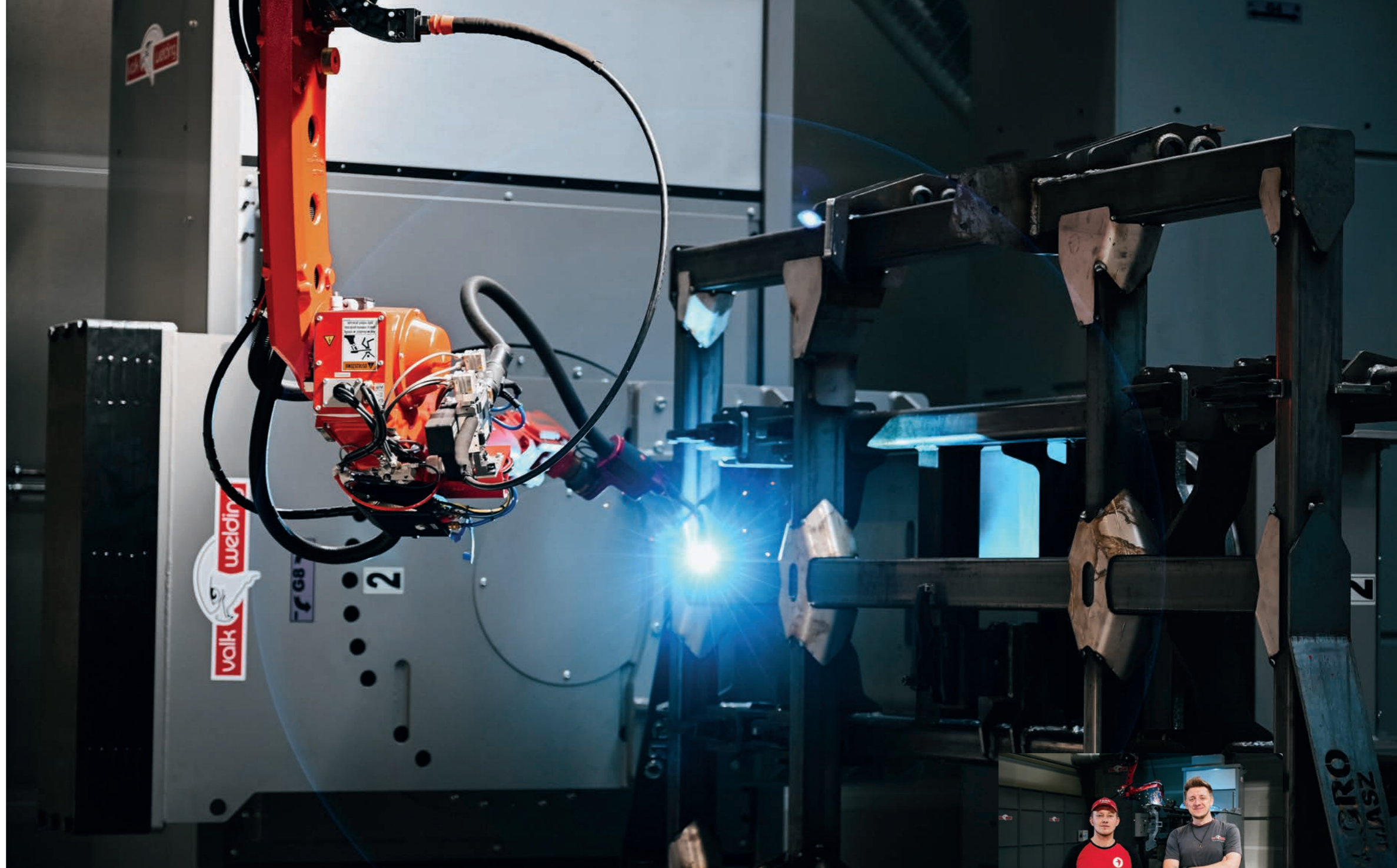
Dynamic development in the agricultural industry

Poland

In today's rapidly evolving industry, the automation of production processes is becoming a key element of success. One of the companies that has decided to make a significant investment in modern technologies is AGRO-MASZ Agriculture Sp. z o.o., known for producing agricultural machinery such as Seeders and no-till cultivators, which are highly sought after in global markets. This company, operating since 2006 and currently employing around 300 people, has been investing in robotic welding installations for several years, allowing it to increase production efficiency and quality.

Decision to invest and associated challenges

For several years, AGRO-MASZ has been considering the introduction of welding robots. The market and available technologies were analysed to find the best solution that would meet the company's requirements for precision, repeatability, and efficiency. Despite initial concerns about costs, the benefits of automation proved to be overwhelming. Automating welding processes not only increases efficiency but also improves work safety by eliminating hazards associated with manual welding. Initially, the company faced uncertainty about whether the modern technologies would bring the expected benefits and whether the team would quickly adapt to working with robots. A breakthrough came with the support of the chosen supplier –



Valk Welding, which not only provided robotic installations but also offered comprehensive training and technical support in programming and implementing serial production.

Benefits of automation

Welding robots at AGRO-MASZ are used for welding components of agricultural machinery, such as frames, tillage tool components, and parts for seeding machines. Automating these processes ensures high quality and repeatability of welds, which is crucial for the durability and reliability of the machines. Thanks to precise preparation of components and the implementation of new material preparation procedures, the welding process has become faster and more efficient.

Challenging market situation and new investments

AGRO-MASZ has been dynamically developing its machinery park and investing in new production halls for many years. Even the current difficult market situation does not deter new investments. "We believe that the current market situation will quickly return to normal. Market fluctuations occur in every industry. Thanks to wise and far-reaching investments, we are convinced that even weaker years in the agricultural machinery market will not affect our company and its condition," says Paweł Nowak, owner of AGRO-MASZ. "Entering a higher technological level will result in easier adaptation to new projects and faster response to changing market needs," adds Mr. Nowak.

www.agro-masz.eu



The key to successful maintenance

For machines that run production day in and day out, good maintenance is essential. After all, we don't want the machines to stand still unnecessarily or parts to be replaced too early due to poor maintenance. One of the companies where maintenance was high on the agenda is the Van Hool company, where Hans Reusen, as former maintenance manager, was engaged daily in keeping the industrial machines in top condition. Van Hool, a manufacturer of buses and industrial vehicles, had 26 welding robots from Valk Welding. In his role as maintenance manager, Reusen worked closely with Valk Welding's service department to ensure the efficiency and reliability of the machines. He is now enjoying his retirement and looks back on a successful career, gladly sharing his insights on the importance of preventive maintenance.

The role of maintenance manager

The role of maintenance manager at Van Hool was mainly focused on the maintenance of CNC machines and the Valk Welding welding robot systems. "Preventive maintenance is crucial," says Reusen. "The technical file must be in order, spare parts must be available, and there must be good maintenance planning. An important aspect here has always been the close cooperation with Valk Welding," says Reusen. "As a supplier of the welding robot systems, Valk Welding has the expertise needed to properly maintain the welding robots."

Technological advancements and maintenance challenges

Van Hool solved most malfunctions themselves, except when it came to complex electronic or software problems. Valk Welding took care of the annual maintenance, with someone from Valk Welding present for three weeks a year to check all machines preventively. Initially, Van Hool carried out the maintenance themselves, but as the systems became more complex and the number of systems increased, Valk Welding's expertise became necessary to ensure quality. Over the past thirty years, Reusen has seen significant technological changes. "Now everything is digital and connected via networks. This evolution has drastically changed the way maintenance is performed."

Reusen praises Valk Welding's service, especially the willingness of the technicians to share knowledge. "It is important that our technicians understand how the machines work," he says. "The personal contacts and quick responses from the entire Valk Welding service team was crucial to our success." Among others, Wil Bos, service engineer at Valk Welding, played a key role in this knowledge transfer. "Wil Bos was a golden guy," says Reusen. "When he was there, we learned a lot. He took the time to explain everything, from A to Z, so that we could do it ourselves next time. This ensured that our technicians remained interested in the welding robots and were always willing to learn."

Crucial importance of regular maintenance and cleaning

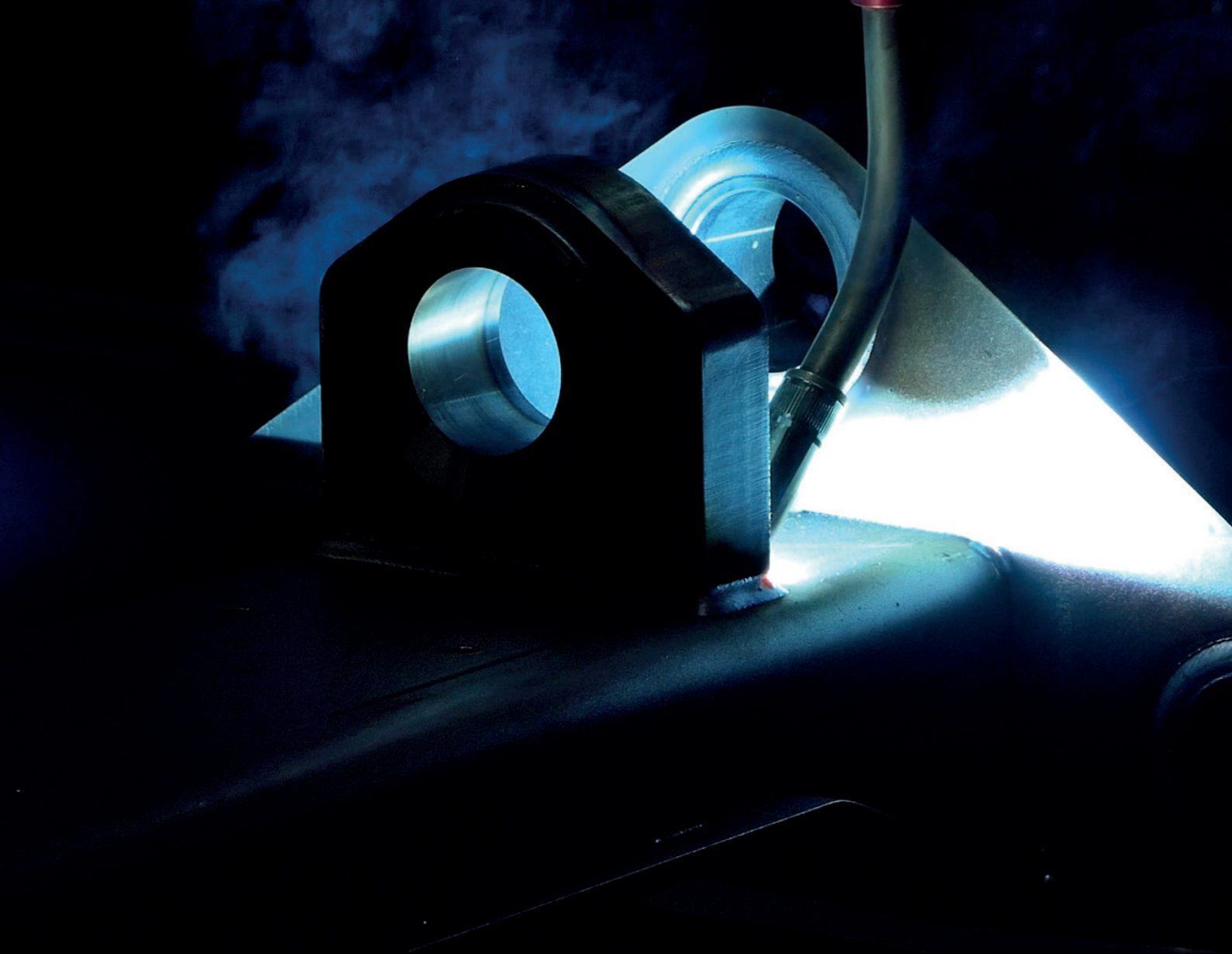
Keeping installations and the work environment clean is crucial for efficient production. "The importance of cleaning must be carried throughout the company," explains Reusen. "If you regularly maintain and clean an installation, it is not much work. But if you don't do it for two or three years, it becomes a huge task." Planned downtime for maintenance is much better than unplanned downtime due to malfunctions. "By working with planned downtime, there is no loss of time, and you can coordinate the maintenance, for example, with the operator's vacation, while unplanned downtime always causes loss. Many people don't think about it. They only focus on production, but maintenance should be as natural as pressing the start button," says Reusen.

Trained personnel

Reusen advises companies with a Valk Welding system to ensure that their employees are well trained and understand the machines. This facilitates communication with Valk Welding's service department because they know exactly what they are talking about. Training these people, regardless of the type of installation, is essential. Reusen looks back on his career at Van Hool with satisfaction. "The constant communication and annual evaluations with Valk Welding have helped us to continuously improve," he says. "I am proud of what we have achieved."

"Planned downtime for maintenance is much better than unplanned downtime due to malfunctions."

- Hans Reusen



Welding robot: next step in JOOP's growth strategy!

The Netherlands

To serve OEMs as a supplier, having a welding robot is a crucial requirement to attract new clients. This was the experience of Joop van Zanten, known as JOOP, from Veenendaal. "When the first leads came in after ESEF 2024, we wanted to have a welding robot within a week. Valk Welding quickly helped us with a TRACK-FRAME-E3100 system with several options, of which the ARC-EYE seam tracking system was one of the main buying reasons for us," says technical commercial advisor Elbert van Zanten.

Joop van Zanten has recently rebranded as JOOP, "Born from the idea of giving our company a personal face." On social media, the supplier regularly shares updates, with JOOP's Industry 4.0 journey being the common thread in most posts. This speaks volumes about the company's ambitions since 2018 to fully focus on the OEM market as a total steel supplier. "Assembly and welding are essentially the final steps in this. With welding certifications ISO 3834-2 and NEN EN 1090 EXC3, we were already well on our way with manual welding. But customers increasingly demand that we guarantee consistent welding quality. Hence, welding robot quality!"

Long-term customer relationships

The decision to fully focus on the OEM market in mid-2018 was driven by a weakening project market, which the company previously targeted with their 'steel service.' "By taking over the production of complete steel components from OEMs, you can fully align yourself with the customer's procedures as a supplier. If you do this well, you can expect a steady stream of repeat orders. Here, we have bins filled with cut parts and semi-finished products in the order of production at the customer, which are delivered to the correct location at the customer's site on demand. We have optimised and automated this to the point where incoming inspection by the customer is no longer necessary," explains Johnathan Jacobus, who, as purchasing and project team leader, often sits at the table with customers.

Exclusively steel

What sets JOOP apart is that they exclusively process steel, but in plate thicknesses ranging from 2 to 300 mm and lengths up to 16 m. The enormous cutting capacity the company has long possessed still forms the basis for the rest of the production. To process both small and large parts, the production hall houses not only several 'smaller' machines but also an 8 m, 1250-ton LVD press brake. The welding department is the final link in the process, with JOOP also having a 5-axis DMU and several 3-axis milling machines, as well as a 12 m, 5-axis Zayer bed milling machine to post-process fully assembled products. This can result in significant time savings in the customer's assembly process.

Consistent welding quality and delivery reliability for repeat orders

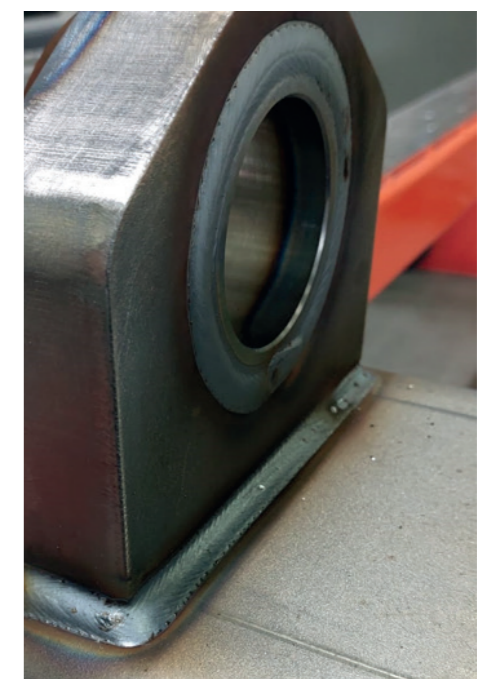
"The use of a welding robot is the latest process additions in our growth strategy, alongside continued investment in automation and knowledge. 'Steel service' thus makes way for 'Industry 4.0.' Since 2018, the focus has been on automation and robotization, forecasting, work preparation, and production," summarizes Elbert van Zanten. "With our self-developed software, we recognise the operations from the customer's STEP files and have real-time production insight via the dashboard. We have the same insight with Valk Welding's 'Management Information System MIS 2.0.' With the standard ability to permanently record all data for each welded product, including all welding parameters!"

ARC-EYE adds significant value

"We have been specialising in the production of mast and tube parts for crane construction for years. The ARC-EYE seam tracking system adds significant value to this. While the customer demands very high tolerances on mast parts made from, for example, S700MC high-strength steel, we can speed up our edge process and compensate for any tolerances in the welding process using ARC-EYE.

"The welding robot on TRACK-FRAME-E3100 is just the beginning for us," continues Elbert van Zanten. "We are now considering what the use of welding robots and ARP Automatic Robot Programming can mean for us. Importing STEP files directly into ARP and fine-tuning them ourselves is exactly how we want to work instead of hiring more employees."

www.joopvanzanten.nl



Börger GmbH in Borken-Weseke relies on new welding robot with a newly developed extraction torch

Germany

VWPR Fume Extraction Atmoflow

“By using welding robots, we can better meet the increasing demands for quality and flexibility and expand our capacities in the existing environment”

- Jens Nünning, head of metal construction at Börger

Börger GmbH is a company with more than 380 employees worldwide, and more than 40 years of experience in mechanical engineering. At its headquarters in Borken-Weseke Germany, Börger develops, manufactures and sells pumps, shredding technology, separation technology, stainless steel containers and much more. A key component of the company is the patented rotary lobe pump, which is used for pumping low to highly viscous and abrasive substances.

In cooperation with Valk Welding, Börger has integrated a new automation solution into production. The new welding robot significantly optimises manufacturing and production processes.

Increasing quality and workplace safety

With the use of a new welding robot and an innovative extraction torch, The VWPR Fume Extraction Atmoflow, Börger pursues the goal of increasing the quality of welds, optimising work processes and making the workplace safer and more attractive. The robot delivers precise and consistent welding performance, which increases efficiency in series production and reduces the error rate. The robot provides valuable support, especially in the production of conveyor screws, an important product for Börger.

‘By using welding robots, we can better meet the increasing demands for quality and flexibility and expand our capacities in the existing environment,’ explains Jens Nünning, head of metal construction at Börger. ‘The extraction torch from Valk Welding also enables us to make the welding process not only more efficient, but also more environmentally friendly.’ The integrated extraction torch is specially designed for capturing and extracting welding fumes. The torch helps improve air quality in the workplace and reduces exposure of the production environment to harmful particles.

Innovative technology and easy integration

In addition, the welding consumables supplied by Valk Welding are optimally tailored to the specific requirements of Börger GmbH. They not only guarantee outstanding welding quality, but also a high level of process reliability. Thanks to the close cooperation in the selection and customisation of the welding consumables, Börger was able to further increase the efficiency of its production processes.

In addition to the welding robot, Valk Welding also provides user-friendly control software that enables Börger GmbH’s employees to operate the robot quickly and efficiently, reducing the changeover time to a minimum.

Aiming for long-term cooperation

The successful implementation of the welding robot and the use of the welding consumables mark the beginning of a long-term cooperation between Börger GmbH and Valk Welding. ‘We see Valk Welding as a reliable partner who understands our requirements and supports us in the further development of our production processes, and the project was completed exactly according to plan,’ Jens Nünning emphasises in conclusion. The investment in modern welding technology and high-quality welding consumables underlines Börger GmbH’s commitment to the highest production quality. The automation solution from Valk Welding is a further step into the future for the Borken-Weseke-based company.

www.boerger.com

BÖRGER
EXCELLENCE – MADE TO LAST

VWPR Fume Extraction Atmoflow

Engmar and Valk Welding have combined their expertise to offer a solution that not only protects the health of welders, but also improves the efficiency of the welding process. The VWPR Fume Extraction Atmoflow, extracts and filters welding fumes directly at the source, minimising exposure to harmful particles. The system is efficient, filters up to 98% of harmful particles and requires less shielding gas, saving costs.

The system has a reusable filter and a bag-in/bag-out system, meaning operators do not have to touch the harmful particles during maintenance. This contributes to a safer working environment and reduces the risk of exposure to hazardous particles. Retrofit on the MIGII torch is possible.



Reliable welding of metal pallets

The Czech Republic

SMR PLUS is a significant player in the field of metal pallet and packaging supplies for logistics needs, especially in the automotive industry. Since its establishment in 2004, the company has gradually developed in terms of utilised space and the acquisition of new technologies. Currently, the company delivers more than 30,000 metal pallets and packaging annually.

One of the main technologies used in SMR PLUS is, of course, arc welding, which is necessary for practically every product leaving the company's gates. Mr. Libor Vaněk, owner and director of SMR PLUS, says: "In 2015, our production volumes began to approach the limit where only manual welding was unable to ensure the required quantity of production. Therefore, we decided to look for a partner who would facilitate our entry into welding robotization and guide us through this (at that time) new process for us as quickly as possible."

Searching for a solution for the production of various small series
 "The production of metal pallets is, by principle, a production where many products are mostly produced in series not exceeding tens or lower hundreds of pieces," continues Mr. Vaněk. "Therefore, we were looking for a partner who has experience with the nature of such production."

Step by step
 In 2015, SMR PLUS decided to gradually robotize the welding processes of metal pallets. The floor subassembly - a flat part, essentially a two-dimensional part - was chosen as the starting point. Two Valk Welding FRAME-H robotic systems equipped with Panasonic TL2000WGH3 robots were selected as the starting machines to gain experience. Thanks to the high engagement of the technical staff, both machines were successfully put into operation in a short time,

and the production of the required subassemblies began. Hynek Tymrák, technical advisor and sales engineer at Valk Welding, says: "Thanks to the positive attitude, appropriate qualifications, and high commitment of the SMR PLUS staff responsible for commissioning both machines, everything went smoothly. The interest of both programmers in the new technology was undoubtedly one of the key points for successful deployment. It is always a pleasure to see when support and advice fall on fertile ground."

Building on solid foundations

When the need for robotization of welding other parts arose in SMR PLUS in 2019, it was decided to purchase five more robotic systems based on the experience gained in previous years. "The experience with support from Valk Welding was so positive that we were happy to use both the advice for configuring individual systems and the possibility of integrating these systems into the DTPS offline programming tool, which we knew very well from previous installations. I can say that thanks to the previous experience, we really had something to build on," says Mr. Vaněk.

Five robotic systems

During 2019, two Ferris Wheel-type robotic systems were installed for welding small subassemblies of metal pallets,



two TRACK-FRAME-E-type robotic systems for welding other flat subassemblies, and one robotic system with a hanging robot for welding large subassemblies and complete 3D assemblies.

Reliable robotic welding

After almost ten years of experience with robotic welding, Mr. Vaněk evaluates: "Robotic welding, including all accessories such as offline programming, systems for eliminating inaccuracies, and others, has become our daily bread. Without these technologies, we would not be able to further develop our production. Thanks to the reliable partnership with a well-chosen supplier who helped us grow step by step in this field, all seven robotic systems do an excellent job."

www.smrplus.com



RWAAS: Robot Welding As A Service

In a time of increasing global competition and difficulty in finding or retaining skilled technical personnel, companies in the industry face significant challenges. Automating production processes is becoming the norm. Valk Welding offers an innovative and accessible solution for manufacturing companies with flexible, temporary, or rapidly scaling production needs with RWAAS (Robot Welding As A Service).

What is RWAAS?

RWAAS stands for Robot Welding As A Service and offers a unique all-inclusive service package from Valk Welding. For a fixed monthly fee, you have access to a welding robot system, including the necessary welding wire, automatic programming, and more. And all this without any upfront investment! This way, we bring innovation and automation within reach. With RWAAS, we launch a unique and accessible Valk Welding solution for manufacturing companies with flexible, temporary, or rapidly scaling production needs. With over 60 years of experience in welding technology, we ensure that the robot is operational within one day and welds your products. RWAAS takes care of everything and takes work off your hands.

Who is RWAAS for?

RWAAS is designed for manufacturing companies that need flexible and scalable production solutions. Whether it's about innovation within your company, reducing your climate impact, or producing high-quality products, with RWAAS, this growth is within reach. Companies that want to automate without large upfront investments can easily and quickly get started with RWAAS. The system is ideal for companies that need temporary extra production capacity or want to experiment with welding automation without long-term commitments.

The benefits of RWAAS

With RWAAS, you choose a strong and reliable partnership with Valk Welding. You benefit from our extensive expertise in robotic welding, with technical support, training, and advice to optimise welding quality and efficiency. We help you solve welding challenges such as difficult materials or high demands on accuracy and productivity. With RWAAS, you not only get access to a robot but also a partner who helps you achieve your goals and stay ahead of the competition.

RWAAS makes automatic welding with Valk Welding's advanced robots accessible to any manufacturing company. With a fixed monthly fee and no upfront investment, RWAAS offers a flexible and scalable solution for companies that want to innovate and automate. Choose RWAAS and bring your future within reach.

The five reasons to choose RWAAS

1. **Automate your operation without upfront investment:** Take two steps forward today without taking a financial step back first. A predictable monthly fee that includes everything you need.
2. **A rock for your team:** The robot doesn't go home after one shift but is there every shift it's needed, welding consistently and efficiently with high quality. This way, you are less dependent on skilled and proficient personnel, which is already hard to find or retain nowadays.
3. **Relax! More hands free thanks to total unburdening:** Benefit from the complete Valk Welding service, including welding wire, service, support, and consumables.
4. **Reduce environmental impact and don't let the robot gather dust:** No longer need the robot? We pick it up, extend the robot's lifespan, and bring it to the next user. This way, we reduce waste and material consumption, moving towards a circular industry!
5. **Achieve welding automation within a day:** The robot is trained to weld your products within a day using Automatic Robot Programming (ARP), license included. We install the robot at your location and start it up together with you.

www.valkwelding.com/rwaas



Watch the video



Joskin Group adopts automated programming

Belgium and Poland

The Joskin Group is a European leader in agricultural transport machinery (slurry tankers, spreading tools, livestock trailers, tippers, silage boxes, etc.). For over 15 years, they have trusted Valk Welding for their welding robot solutions, but they want to go further in terms of software and programming. The group is testing the use of ARP powered by ArcNC combined with 3D scanning of their welding jigs for medium-sized parts.



launching the Polish site. But that didn't make sense, and we persevered by restarting with the three most recent robots and new personnel," recalls Didier Joskin.

This was done, and we quickly ordered more robots from Valk Welding," says Didier Joskin.

Having regained confidence in welding robots, the group's management decided in 2007 to acquire new machines. Among the various manufacturers consulted, the choice fell on Valk Welding. "Our problem was the presence of deformations on hydraulic cylinders (actuators) during robotic welding. The Valk Welding team was the most proactive: they first proposed a solution involving cooling during welding – it wasn't very practical, but it worked – then they assured us that we could do without this cooling system by finding the right welding parameters.

In total, the group has 15 operational robotic welding installations from Valk Welding: mainly H-robots, two Z-robots with mobile tailstocks up to 4 meters, three specific robots on rails, and three large robots associated with manipulators for welding very large parts – the tipper boxes can measure up to 8.7 x 2 x 2.5 meters (L x H x W) and the livestock trailer boxes up to 9 meters. "To weld such large parts, we had to take some precautions, such as making sufficiently precise parts on a jig. Today, there are technologies such as Valk Welding's ARC-EYE camera joint tracking," says Didier Joskin.

[Read more on the next page](#)

Located in the heart of the Entre-Vesdre-et-Meuse region, in Herve country, east of Liège in Belgium, a grassy agricultural plateau known for its Herve cheese. This is where the headquarters of the Joskin Group is located, a company that has made a name for itself in agricultural machinery. "It was my father, Victor Joskin, who founded the company in 1968, initially an agricultural contracting business, thanks to the equipment of my grandparents'. My father then invested in his own equipment to strengthen the fieldwork service offered to other farmers," recalls Didier Joskin, CEO and production manager of the group.

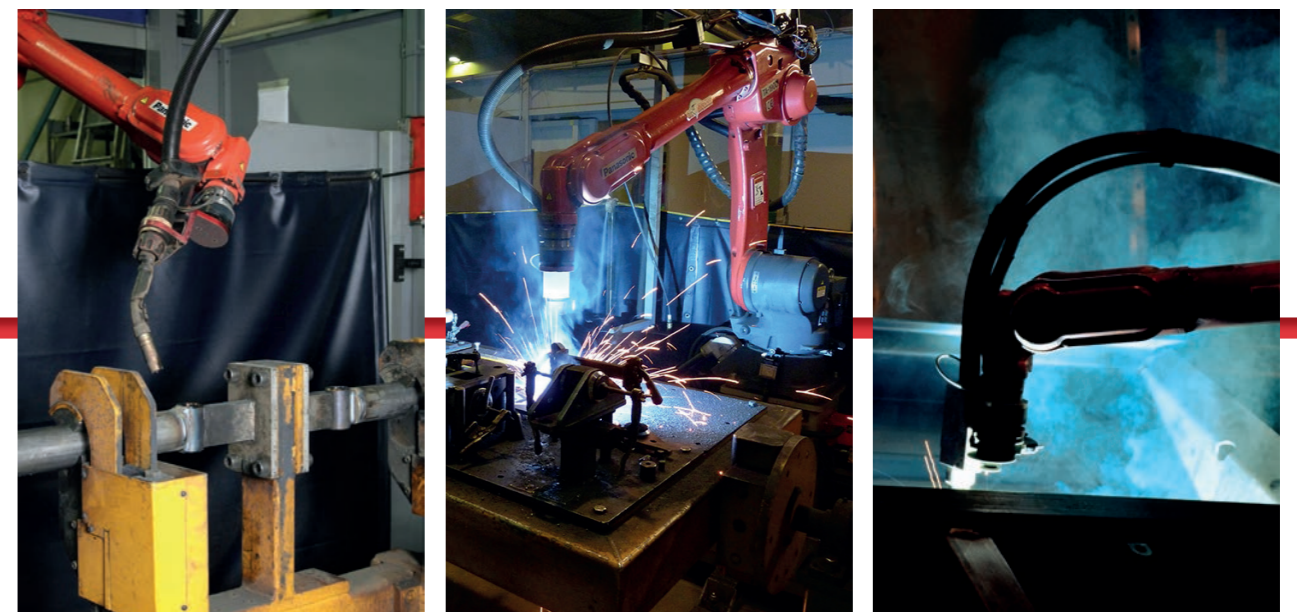
economic context, my father decided to produce his first slurry tanker to continue offering his clients machines at reasonable prices. And just a few years later, the company had its first production plant."

Today, the group employs over 870 people with an annual consolidated turnover of 140 million euros across five production sites in Soumagne and Thimister-Clermont (Belgium), Trzcianka (Poland), and Bourges and La-Vieille-Lyre (France).

The Valk Welding team was the most proactive

Regarding MIG-MAG welding, the group acquired its first robots in 1994. But in the mid-2000s, they were no longer satisfied with their robotic welding solutions. "Programming had become very complicated with each new part, everything had to be recalibrated every time a welding jig was put back in place, etc. Unable to find a suitable solution, we even wondered if we should switch back to manual welding when

But Victor Joskin didn't stop there. He then repaired his own machines, then those of his clients, which led him to open a real repair service, and then he imported equipment that was not available in the region. Gradually, the range of distributed brands expanded, and the company then abandoned agricultural contracting to focus on repairing and importing machines. Didier Joskin continues: "In 1984, in a difficult





“Joskin has relied on Valk Welding for their welding robots for over 15 years. Together, Valk Welding and Joskin have been building the future for 15 years and continue to innovate.”

Connecting 3D scanning of jigs to ARP Powered by ArcNC

The group has been using the DTPS software for years to program the welding of large parts, but not small or medium components. One reason is that the company does not have the jigs drawn in 3D, and without them, the DTPS software does not know where the stops, clamps, and other elements holding the part are, all obstacles the robot must avoid.

“Five years ago, we tested a solution where we scanned the jigs to retrieve a model used in DTPS. While this reverse engineering technology worked, the software was not advanced enough: the times were too long, and the files to manage were too large,” regrets Didier Joskin. “We conducted new tests with a 3D scanner acquired at the beginning of 2024, whose software allows us to clean the data easily and quickly to have the lightest possible file.”

And the company uses this information in the new ARP powered by ArcNC software from Valk Welding. “This is a test phase, in which we connect our reverse engineering method with this automatic programming software based on artificial intelligence (AI). It provides us with a pre-processed program, which still requires adjustments (welding parameters, for example) in DTPS before being injected into the robot. The initial results obtained on medium-sized parts, where online programming time on the robot is more significant, are encouraging. But the goal is to have a program generated by ARP powered by ArcNC as complete as possible and achieve tenfold gains in programming time for very large complex parts,” says Didier Joskin.

And the 100% family-owned Belgian group can count on its partnership with Valk Welding to further strengthen its position as a European leader, and even a world leader in some markets. They have already ordered two new robotic installations equipped with the latest Panasonic G4 controller and patented ARC-EYE Adaptive technology for their Soumagne site, which allows real-time adjustment of welding process parameters.

www.joskin.com



DTPS



ARP



ARC-EYE

Innovations in welding technology: The power of ARC-EYE Adaptive Multi-Pass

In the world of welding, precision and efficiency are of utmost importance. The ARC-EYE Adaptive Multi-Pass application offers a solution to the challenges associated with labour-intensive welding processes for thick plate materials with varying weld seams. Especially in heavy industries, we often see large variations in weld seams between plate materials, making automation seem impossible at first glance. However, with ARC-EYE Adaptive Multi-Pass, this is now changing.

ARC-EYE is the basis

The ARC-EYE technology is designed to increase the accuracy of welding processes by using advanced camera and scanning techniques. The basis for this technology is the ARC-EYE laser sensor camera from Valk Welding. The basic functionality of the ARC-EYE camera is to follow the pre-programmed weld seam in real-time in both position and orientation. By adding the Adaptive plug-in, it is possible to correct the welding parameters in real-time while following the weld seam when deviations in the geometry of the plate material occur. This applies not only to welding current and voltage but also to welding speeds, oscillation movements, and any waiting times.

ARC-EYE Adaptive Multi-Pass

With the advent of the Adaptive Multi-Pass application, the ARC-EYE camera goes a step further and can now make automated calculations to achieve optimal filling of the weld seam. First, the ARC-EYE scans the programmed weld line and creates a 3D landscape based on the scan. Additionally, the Adaptive Multi-Pass application is fed with a knowledge base containing all the properties of the material to be welded. This information is

combined by the Adaptive Multi-Pass application to determine the correct welding parameters. The multi-Pass application calculates how many layers and weld lines are needed to fully fill the weld seam and which welding parameters should be used. This not only guarantees welding quality but also brings significant economic benefits by reducing the consumption of welding wire and saving a lot of time both during and after welding, where excess weld material would otherwise need to be ground away. An important aspect of using the ARC-EYE Adaptive Multi-Pass application is the knowledge base from which the software makes the right choices for optimal welding. This knowledge base, which users can easily fill themselves, contains all the data of the material to be welded under various (welding) conditions. Based on a few welding tests, the behaviour of the material is analysed, after which the software calculates all intermediate values for all possible situations. So, you keep your own welding knowledge in-house!

Self-steering

Once the ARC-EYE has created the 3D landscape and the knowledge base contains all the data, the Adaptive Multi-Pass calculates the required welding parameters and how the weld can be optimally laid. For example, in the case of a 4mm weld, the software knows exactly which parameters to use to optimally lay the weld with that type of welding wire. In the case of varying depth and width, as seen with a V-groove, the ARC-EYE Adaptive Multi-Pass goes a step further and calculates how many layers the weld seam should consist of. If the width then deviates too much, the software calculates whether two weld lines next to each other can ensure an optimal end result.



Conclusion

The new Valk Welding ARC-EYE Adaptive Multi-Pass development, like other unique developments from Valk Welding, will once again push the boundaries. In combination with the exceptionally reliable and flexible Valk Welding robot installations, this development will be a real game changer for bridge construction, shipbuilding, offshore, wind energy, excavators, and the transport industry.

Watch the video

Downs - A Welding Robot for Small and Medium Series Production

France

Downs (Dubrulle group) designs and manufactures agricultural equipment for the reception and conditioning of root vegetables (potatoes, onions, carrots, etc.). The deployment of a welding robot for small sub-assemblies intended for its specific machines helps facilitate the daily work of operators. The arrival of this robot is significant as it is part of a large-scale development project for the company.

Contrary to what some people might still think, the agricultural world is very advanced in terms of new technologies. "It is the second most innovative sector in the world after the IT sector: there is more technology in a tractor today than in a car. For example, we have developed a three-output optical sorter (good/bad/second quality), unique in the world, using cameras coupled with artificial intelligence (AI)," says Charles Verbaere, Methods and Continuous Improvement Manager at Downs.

This French company, which designs and manufactures agricultural machines for potato cultivation, originated in 1860 with the creation of the company by Edward Walter Downs in the UK. Its history with France began in 1981 when the Dubrulle company, then specialised in handling, became the exclusive importer of the English brand for the French market until 2006, when Dubrulle acquired Downs.

A major development project

"Today, we manufacture between 350 and 400 machines per year, all at our site in Sainte-Marie-Cappel (North), and we export about 50% of the production worldwide, mainly to Canada, the United States, Eastern and Nordic countries," says Charles Verbaere. The Dubrulle group employs more than 200 people and is involved in three activities: agricultural machinery construction (about 100 people for a turnover of €22 million), public works (Dubrulle TP), and equipment rental (DLoc).

"Our philosophy, which is 100% integrated manufacturing, is accompanied by numerous investments. After extending the existing factory from 2,000 to 4,500 m² in 2015, and then building new offices in 2020-2021, the management launched the project to extend and invest in means up to the level of our machines, such as the AI-based optical sorter, for an amount of several million euros," continues Charles Verbaere.

Thus, in 2023, the new factory of more than 5,000 m² next to the historic buildings brought the total production area to more than 10,000 m². In terms of equipment, Downs has acquired TRUMPF laser cutting machines for cutting sheets and tubes, as well as two connected TRUMPF bending machines, and two handling robots associated with MAZAK machining centres.

Finally, the company invested in a Valk Welding welding robot to complete the welding department. This robot is intended for the assembly of small common sub-assemblies that welders will then integrate into agricultural machines.

"Since we only do custom work, it took us several years to take the step of welding robotization. The production teams also had to provide sufficiently precise parts to be compatible with robotization," recalls Charles Verbaere.



The choice of Valk Welding, an obvious choice

The choice fell on Valk Welding: "In our sector, Valk Welding is highly regarded for small series, specific welded parts, and the simplicity of programming," says Charles Verbaere. The model chosen by the company is based on a TRACK-FRAME-E consisting of two 4-meter-long stations, with track and integrated welding fume extraction, and a pulsed MIG welding robot with a reach of 1,999 mm and a payload of 6 kg (TL series).

"The two turntables are better suited than two face-to-face stations. Indeed, they allow welding on one and loading/unloading on the other at the same time. This possibility ensures rapid production of large quantities of small parts, up to several thousand per year for some references," explains Gabriel Letombe, Process Technician. Another advantage is the cleanliness and repeatability of the sub-assemblies thus produced: compared to manual welding, which produces more spatter that must then be scraped off, and a more variable position of the weld beads, this results in a time gain.

"One of the selection criteria was the simplicity of programming, directly on the machine (online) or offline (on a computer), with the ease of switching from one to the other," notes Charles Verbaere.

Helping welders daily

Once the decision to pass a sub-assembly to the welding robot is made based on criteria such as the need for repeatability, time savings, or the lack of added value for a welder, it is enough to import the 3D model of the sub-assembly into the DTSP offline programming software to quickly obtain a result.

"The welding robot is also a response to recruitment difficulties in the welding sector; it is by no means an intention to reduce staff, quite the contrary. Like other production means, the welding robot is there to relieve operators and allow them to perform high-value-added tasks. We also manage to extend working hours without switching to 2x8 or 3x8 shifts," explains Charles Verbaere. Downs does not intend to stop there and plans to expand its machine park.

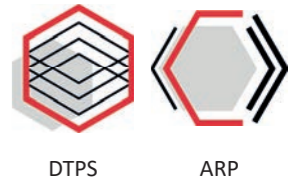
ARP powered by ArcNC, a "surprising" software

The process team of Downs is one of the first in France to use the ArcNC automatic robot programming software. This tool requires only a few pieces of information (3D model, type of assembly, position of the weld beads) to create a complete program. "It is very interesting software for us who use a welding robot for small series. Although very intuitive, this software is nevertheless a bit overwhelming at first," says Charles Verbaere.

"It is the trajectories (positions and orientations of the robot) that are a bit overwhelming, which we would not have imagined doing like this with conventional programming software. But it is the welding result that counts," notes Florian Catteau, Methods and Continuous Improvement Technician.

"The welding robot is also a response to recruitment difficulties in the welding sector; it is by no means an intention to reduce staff, quite the contrary."

- Charles Verbaere, Methods and Continuous Improvement Manager at Downs.



After focusing on the robot's movements, the Downs team conducted the first welding tests on a sub-assembly from a program generated by ARP. "The first advantages we identified are time savings on certain sub-assemblies, even if some adjustments are needed - it allows roughing out the program - and the possibility of working in hidden time. It also improves the 'quality standard' of welding and Downs products continuously improved with the capitalisation of settings & tests with AI. ARP also brings a breath of fresh air to the field of programming software," says Charles Verbaere.

This new way of programming also makes it possible to enhance the manufacturing level of people open to continuous improvement & modern technologies in line with the innovative spirit developed at Downs in the design of its machines... As is the case for Béatrice Lejeune, the robot operator, met during the interview.

www.downs.fr



The strong connection

Let's connect at shows

Sepem Douai

28.01 - 30.01 (FR)

Machineering

26.03 - 28.03 (BE)

Welding & Automation

06.05 - 07.05 (SE)

Dira Business og Robotbrug

08.05 - 09.05 (DK)

Maak Industrie Expo

16.05 - 17.05 (NL)

Nederlandse Metaal Dagen

21.05 - 23.05 (NL)

Schweissen & Schneiden

15.09 - 19.09 (DE)

Hi Tech & Industry Scandinavia

30.09 - 02.10 (DK)

Sepem Anger

07.10 - 09.10 (FR)

Metavak

07.10 - 09.10 (NL)

Blechexpo

21.10 - 24.10 (DE)