VALK MAILING
a publication of Valk Welding
22th year - 2022-1

"Valk Welding wire and Panasonic waveforms increase productivity"

Valk Welding

"ManOrga boosts its robotic welding"

ManOrga

valk welding

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Dear reader,

After we thought at the beginning of this year that we had escaped the oppressive grip of the COVID-19 virus after a period of almost two years, the world has once again ended up in a situation that almost everyone thought would never happen again. The war and aggression from Russia showed us how vulnerable a country like Ukraine, and with it the entire world economy, can be. Firstly, our concerns go out to the inhabitants of Ukraine because of the danger they are in by Russian attacks and of course to all the refugees who are trying to leave the battlefield.

We at Valk Welding have made substantial donations to the international Red Cross, while our Czech colleagues have also collected food, goods, and other products necessary for the basic necessities of life and have transported them to Ukraine. Also, some employees of Valk Welding have gone to pick up relatives at the Ukrainian/Polish border, in order to be able to evacuate these people to the West of Europe. We at Valk Welding will continue to do everything in our power to help and support the refugees from Ukraine.

Apart from the human tragedies that are taking place at the moment, the entire supply chain has been put in a very risky situation because many products that are needed by the Western European economy are produced partly or entirely in Ukraine or Russia. At the time of going to press with this Valk Mailing, we do not yet have any direct problems with our suppliers, although the first indications of shortages of certain raw materials and products have already been reported with longer delivery times. Our supply chain team, as we have learned from our Japanese supplier Panasonic, has immediately taken action to find alternative suppliers in case of non-delivery. We also placed additional orders with our main suppliers, including Panasonic, in order to be able to tackle the almost certainly increasing delivery times.

The above-described actions to keep our supply chain as intact as possible, however, are in sharp contrast with the problems of the inhabitants of Ukraine and the financial consequences of the rising energy prices on a global, but certainly on a European level.

We are facing a very uncertain time and count on everyone’s understanding in case of unforeseen circumstances.
It only remains for me to wish you a healthy spring and summer.

Remco H. Valk (CEO Valk Welding Group)

Huppertz wants to integrate a welding robot into production step by step

With the commissioning of a new welding robot installation, Huppertz AG, located in the eastern Belgian town of Sankt Vith, wants to create added value for its customers, increase welding capacity and further strengthen the stability of the company. “We are deliberately doing this step by step in order to be able to make the technology our own in a sensible way,” explains managing director and owner Karl-Heinz Huppertz.

When, for a given order, all operations from A to Z can be carried out in-house, it not only saves time and costs, but you can also perfectly coordinate all process steps. This goes from design and engineering over to laser cutting, bending, robotized welding to powder coating and assembly. In addition, the company can, as one of the few, handle large product dimensions. Huppertz AG distinguishes itself with this complete package and has thus firmly established its position in the region of East Belgium and far beyond. In series production, but especially for large-volume products such as the industrial furnace systems, filter housings, steel, and machine construction that Huppertz AG builds for OEMs, these competences provide great logistical and cost advantages.

Expanding the welding capacity

To expand capacity in the welding department, the investment in a welding robot had been on the wish list for some time. The fact that the company does not want to make investments in a hurry is evidenced by the fact that Huppertz AG held the first discussions with Valk Welding as early as ten years ago and only became acquainted with the possibilities of welding robotization for the first time in 2018 with a welding robot on a rental basis. Based on these initial experiences, Karl-Heinz Huppertz, together with Freddy Classen, who is responsible for the welding department,

Watch the video

continued discussions with Valk Welding about the supply of a large welding robot system to enable robotic welding of both small and large assemblies. “From the beginning we had every confidence in the knowledge and competences of the people of Valk Welding”, both gentlemen emphasize.

Step-by-step integration

The 9-axis welding robot installation, installed at Huppertz by Valk Welding at the end of 2019, is set up for maximum flexibility with two workstations, a longitudinal displacement of 14 meters, a workpiece manipulator, and an innovative sliding centre fence. “We are now using the welding robot installation for welding-intensive workpieces, such as subassemblies for industrial vehicles and boiler constructions, but also for smaller parts for machine building. The fact that the welding robot installation is thus not yet fully occupied at the moment is a conscious decision,” explains Karl-Heinz Huppertz. “We want our people to be able to make the technology their own in an organic way. Of course, the investment must be recouped, but without putting pressure on our people. We have set a target of four years to have the welding robot installation fully occupied. If it is sooner, that is of course better, but it is not a goal in itself,” clarifies the owner.

From online to offline programming

Huppertz AG also maintains a step-by-step structure with its programming. The first products were programmed online at the welding robot. “This allowed our operators to gain the necessary basic knowledge and experience, which shortened the learning curve when training for offline programming,” according to Freddy Classen. “All in all, the sensible and gradual introduction of welding robot technology ensures a future-oriented development from which we are already reaping the benefits.”

www.huppertzag.com

Welding robot contributes to independence and flexibility

HON is a family business with almost one hundred years of experience in furniture production. HON is located in the Opava region of the Czech Republic. The story began in 1924, when Jan Hon established his own workshop. Today, HON is a modern furniture manufacturer with 170 employees and state-of-the-art technological equipment.

HON a.s. develops and manufactures high quality furniture for offices and business premises. Particularly popular on the market are the HONmove height-adjustable desks, which were developed in-house based on the first prototype and meet the strictest ergonomic criteria.
The company's diversity is also supported by three in-house kitchen studios and the fact that HON has its own metal production plant. "We are a purely Czech manufacturer, and we have a unique position on the market because we are comprehensive. In addition to wood, we also work with acoustic materials, we have our own upholstery factory, but above all we can also produce metal parts for our furniture," explains Václav Hon Jr., director of HON a.s., and representative of the fourth generation.

Metal production has strengthened the entire company
The introduction of metal production in 2007 was fundamental for the family business. Since the increasing demand for quantity, variability and quality of metal furniture components could not be met by external suppliers, the company solved this by setting up its own "engineering" production. This significantly expanded its production portfolio and eliminated its dependence on external supplies. One year after its establishment, it even became a supplier of metal parts to other customers.
Currently, this production centre of HON a.s. has the technological capabilities for CNC laser cutting of hollow sections and plates, their precise CNC bending, MIG/MAG and TIG welding, blasting, degreasing and powder coating. Currently, metal production represents about 35% of the total production volume of HON Inc. Approximately 70% to 80% of metal production consists of parts for custom furniture assemblies, with the remaining capacity we produce for other furniture manufacturers or interior design companies.

"We did not choose the cheapest solution, but from our point of view it was the most logic one"
-A. Hon

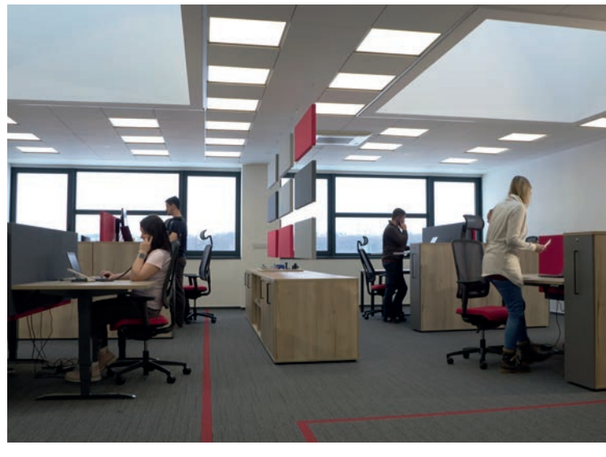
Robots for more capacity and flexibility
The decision to purchase a robotic welding system was a natural one, says V. Hon. "At the time, the demand for height-adjustable tables was increasing rapidly, we needed more welders, and our own capacity was no longer sufficient. At the same time, there is a long-term shortage of welders in the market, so the purchase of a robotic welding system was logical," says V. Hon. A. Hon adds that after a selection process with three companies, the final choice fell on Valk Welding. "We did not choose the cheapest solution, but from our point of view it was the most logic one. We considered the technical concept, the functional elements, the control environment, but also the availability of services and the level of communication. All this convinced us that Valk Welding's solution was the best for us. We received a solid solution from a proven company, and if we had to choose again, we would choose Valk Welding again."

The robotic welding system became part of the existing metal production area. So we also paid attention to the footprint. The robot system is based on a Panasonic TL-1800 WG3 welding robot with positioners. The robot mainly welds parts for HONmove height-adjustable tables - columns, bases, complete bases, and booms. Also, other metal parts needed for the company's own furniture production and the production of external customers. These are mostly medium-sized welded parts with a wide variety of types typical of the furniture industry.

"The rotating positioning tables are designed to allow us to use as many fixtures as possible, this way we can weld different types of welds and ensure that the changeover is as fast as possible," explains the company manager. "Robotic welding is fast while maintaining a consistently high quality, which means less material is lost. The ability to weld multiple pieces of the same run simultaneously is also an advantage." Three employees are trained to operate the workstation. Welding programs are prepared offline by a programmer on his computer and "uploaded" by the operator to the robot.

When collaboration benefits everyone
Valk Welding is guided by the slogan "The strong connection", which symbolizes not only the strength of the weld, but also the quality of the relationship with customers. When Valk Welding's Czech representative office moved from rented premises in Mosnov to its new own headquarters in Paskov at the end of 2019, one of the things that had to be arranged was the furnishing of the premises. Valk Welding therefore naturally chose its customer, HON, as its supplier. The company supplied not only ergonomic height-adjustable desks, but also other furniture for offices, meeting, and training rooms. So, the relationship between Valk Welding and HON is not just one-way traffic.

www.hon.cz



Watch the videos

Four Dee tackles welding robot automation big time

Even in Northern Ireland where companies can no longer rely on welders from EU countries due to Brexit, the shortage of welders is a pressing problem in production.

Four Dee is one of the companies that went in search of a flexible automation solution for welding assemblies for stone crushers and screening plants that the company makes for Sandvik, Terex and McCloskey, among others. The first welding robot installation became immediately large and advanced, with the company also partnering on a test phase for the ARP (Automated Robot Programming) software that Valk Welding is currently developing.

Four Dee, a family business owned by four Donnelly brothers, is a leader in Northern Ireland in the supply of assemblies to the transport and engineering industries. For some time now, the company has been orienting itself towards a flexible automation solution for their high-mix, low-volume welding production. “We also wanted to spend as little time as possible on programming,” explains managing director Alan Donnelly. “To do that, we were looking for a supplier that could offer all facets of the welding robotization process and has a proven track record in that area. Valk Welding emerged from the selection in this regard.”

High-mix, low-volume

“The large frame parts we weld involve a great deal of variation and small numbers, with welding times sometimes more than 20 hours. If you want to weld those robotically, that means a lot of programming work. In addition, conventional seam searching over the long lengths takes a lot of time. On all these points, Valk Welding has developed a lot of experience and solutions that other robot integrators cannot offer,” explains Alan Donnelly. Valk Welding proposed a 3-axis system with a suspended welding robot on a track. That system was installed in the summer of 2021, including programming of the first side frames.

Full options

To minimize welding times, the cell is equipped with many options. For weld seam searching and tracking, a combination of Quick Touch Sensing (wire searching) and seam tracking with the Arc-Eye CSS laser sensor is used. With Touch Sensing, the welding robot only searches the starting point, then the Arc-Eye follows the weld seam in real time. “This allowed us to greatly reduce the search time,” explains Conor Burrows, who, as Mechanical/ Manufacturing Engineer, handles the entire automation process. In MIS 2.0 (Management Information System) we monitor the robot’s duty cycle and record the welding data. We are already at 75% duty cycle, while we have only been on the road for six months.” For the welding fume extraction, a welding torch with integrated welding fume extraction is included, which extracts over 98% of the welding fumes directly at the source and filters them with a high vacuum unit.

ARC-EYE MIS2.0 ARP DTPS

“The addition of manipulation gives even more flexibility for welding assemblies.”
- Alan Donnely

Automation of programming process with ARP

One of Four Dee’s main objectives was to reduce the programming time for single pieces and small quantities. For most SMEs in a high-mix, low-volume production situation, programming time is still an obstacle, according to Alan. It was decided to enter a pilot project with Four Dee for the ARP software that Valk Welding is currently developing. “We import the customer’s CAD files as STEP files into ARP, generating automatic robot programs and then manually update them in DTPS. Although the ARP software is still in the development phase, we are already seeing significant time savings from days/weeks to hours/days for one product.” explains Conor Burrows.

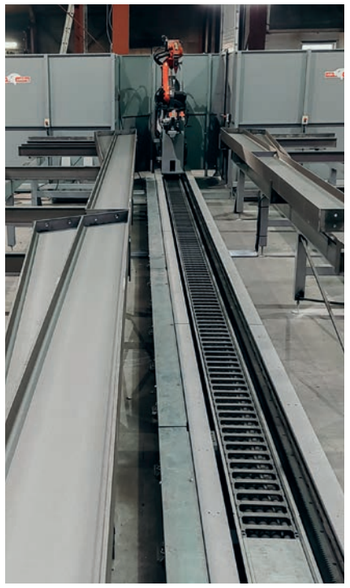
Further expansion

The system is equipped with two stations, so you can load and unload in one station while the robot loads in the other. A second system was completed earlier this year, for smaller parts up to 7 meters in length. “The addition of manipulation gives even more flexibility for welding assemblies. The ultimate goal is to be able to weld complete chassis fully robotized in the near future,” Alan Donnely looks ahead.

www.4d-ni.co.uk

Grædstrup Stål A|S

Bottleneck in welding department solved



For Graedstrup Stal, a medium-sized manufacturer of steel structures for hall construction in Denmark, welding was the bottleneck in production. From one side, due to a shortage of manual welders, and from the other because the programming of the existing welding robot could not handle the increasing demand for customer-specific dimensions fast enough. Graedstrup Stal therefore switched to Valk Welding robots with offline programming. “Besides the fact that this allowed us to increase our output, the welding robots also made the work for the welders less monotonous,” says Production Manager Allan Kåstrup Kristensen.

Graedstrup Stal has focused entirely on engineering and manufacturing trusses and columns for the steel structures it supplies to Danish construction companies. “We only do the assembly on site, using our own trucks and cranes. We leave the finishing up to the contractor. With a powder coating installation in-house, we are unique, and we can keep an optimal grip on the high quality,” explains Allan. Every year the company processes more than 5,000 tons of steel, good for 6 to 7 construction projects a week”.

The construction parts are prepared by the engineers in Tekla® CAD, after which the parts are produced with punching, drilling/sawing and plasma cutting machines. “Due to the large variety of dimensions, we mostly weld manually on 2 welding lines. However, the welding of end and support plates on the steel profiles is monotonous work for the welders, for which we deployed a welding robot some time ago. However, this was limited to serial production. Programming just a few pieces was too time-consuming. For us a reason to look for another partner”, explains Allan Kåstrup Kristensen.

Valk Welding delivered a total concept including DTPS offline programming software, in which the STEP files from the Tekla® CAD software are directly imported into DTPS. The software engineers of Valk Welding ensured that within DTPS the most common welding paths were recorded in QPT (Quick Programming Tools) macros. These macros were created in such a way that we only have to select the weld seams and search directions, the rest is done automatic. “This results in an enormous time saving in the work preparation. With 15 to 20 minutes of programming, we can easily move one and sometimes two shifts forward. With this method of working, the workflow in the welding department now runs smoothly again. An additional advantage is that when a part is attached in the wrong position or even missing, the welding robot stops immediately because the path does not correspond to the welding program”, explains Allan.

Because a visit to the headquarters of Valk Welding in Alblasserdam was not possible due to Corona, the cell was taken without a factory acceptance test. Allan Kristensen: “The contact with the Danish specialists from Valk Welding gave us a good feeling from the first meeting at the fair in Herning. They listened carefully to our wishes and tried to find the best solution, without selling us something we did not need. Therefore, we were able to make the purchase entirely on the basis of trust.”

www.gsas.dk

DTPS

QPT

Valk Welding focusses on TCO

(Total Cost of Ownership)

When it comes to investment plans in production equipment, companies look not only at the product, but increasingly at the overall picture. What security does the supplier offer, what about the service in terms of costs and intervention speed and what other costs should I consider over the coming years, in other words, what is the Total Cost of Ownership (TCO)?

Service as part of the TCO plays a crucial role in investments in production assets. After all, a company does not want to be idle for too long and wants to be helped as quickly as possible to resume production. Valk Welding has fully equipped its service department with this in mind. “We try to help our customers by phone as much as possible with our free service desk. In most cases this is successful, and the welding robot installation can be up and running again in no time. Only in exceptional cases, when there is no other option, our service technicians are ready like ‘firemen’ to solve a malfunction on site within 24 hours,” says Martin den Dulk, team leader of the service department.

“With ten employees, we thus keep more than 3,000 welding robots throughout Europe up and running to full satisfaction. That says it all”.

Small, fast, and flexible
Partly because of their high reliability and high user-friendliness, Valk Welding’s welding robot installations require little maintenance. Operators can solve most issues themselves, and breakdowns are minimal. “Therefore, we can be successful with a small, flexible service organization as far as the mechanical, control and welding components are concerned. With ten employees, we thus keep more than 3,000 welding robots throughout Europe up and running to full satisfaction. That says it all,” explains Martin den Dulk. “We have therefore not set up our service department as a business unit, but purely to be able to provide our customers with optimal support and continuity,” adds CCO Peter Pittomvils.

Low TCO is beneficial
“If you translate that into the service costs that our customers spend on their welding robot installations, then this results in a much lower TCO compared to other robot installations supplied by classic integrators who do see service as a source of income. For both existing and potential new customers, it is therefore important to identify all costs, for service, spare parts, training, etc. and to take the TCO into account as a decision-making criterion when making an investment,” believes Peter Pittomvils.

40 years of welding robot knowledge and experience
“And above all, let’s not forget the enormous amount of knowledge and experience in welding, robotics, vision and software.” continues Peter Pittomvils. “Our solutions are extremely durable and reliable so the TCO of our systems is remarkably low compared to other industrial machines.”

All components from our own company
Another important aspect is that Valk Welding supplies total systems, in which all critical components are developed in-house. “In doing so, we want to prevent a third-party component from being the Achilles’ heel in the installation,” Pittomvils cites as examples: the robotic torch with pneumatic shock sensor, the wire feeding system, the Arc-Eye laser sensor, and accessories such as torch change systems, not to forget the many software solutions. “This is advantageous for our customers that they have one point of contact for all questions and problems.”

Examples of costs that are part of the TCO:
- Preventive maintenance costs
- Repair costs
- Spare parts
- Depreciation costs
- Insurance costs
- Financing costs
- Training and education costs
- Operator cost
- Energy cost

MIS2.0 reduces TCO
The Valk Welding MIS 2.0 software is a unique solution monitoring real-time an enormous amount of data. Not only production data and welding information but also parameters that may indicate possible upcoming problems. With this information, the user can then anticipate more quickly and avoid higher costs. Thus, the TCO is also reduced.

For more information about MIS2.0, please see our software brochure (page 12).

Valk Welding wire and Panasonic waveforms increase productivity

The use of Panasonics super high frequency inverter technology allows fabricators to benefit from welding processes such as HD-Pulse - short for Hyper Dip Pulse. This modified pulse welding waveform enables significantly higher travel speeds, lower spatter levels whilst ensuring positive penetration. HD-Pulse is frequently applied by Valk Welding to optimize its customers productivity in both steel and stainless-steel applications.

Higher Travel Speed
Increasing the travel speed of a standard pulsed GMAW (MIG/MAG) welding processes is often limited by the physics of the weld puddle. The weld puddle cannot follow the desired travel speed causing undercut or an irregular weld profile. HD-Pulse solves this issue through Panasonic's patented Dip Pulse technology.

Reduced tendency to undercut
With HD-Pulse a pulse and short arc are combined which lowers the arc voltage and allowing for significantly higher travel speeds. This results in substantially lower heat input with numerous advantages. heat-input levels. In thin plate applications this will reduce distortion and in case of stainless steel, it will also reduce the level of heat tint. The latter could result in less pickling/passivation. In general, these conditions will lower the tendency to undercut.

Low Spatter levels
Short arc in GMAW (MIG/MAG) is often associated with increased levels of spatter. Panasonics patented low amperage Dip-Pulse technology ensures that spatter is virtually eliminated. During the HD Pulse process, the wire enters the short arc phase under low amperage circumstances after which the metal transfer takes place. The arc will be re-established during the following plasma boost which also further reduces the tendency to create spatter.

Valk Welding V3L5 HD Super welding wire
The application of advanced waveform is best combined with Valk Welding V3L5 HD Super welding wire. This welding wire is characterized by the tightest chemical specification, addition of micro alloy elements and the application of arc stabilizers in the wire lubrication. This provides enhanced arc-start behavior, excellent wetting and conglomerated silicates that are centered on the weld rather than on the top and bottom toe. The combination HD-Pulse and V3L5 HD Super offers increased travel speed and requires the lowest post weld cleaning time; This combination truly increases welding productivity!

Steffen Schindler, Jürgen Andree, Filippo Di Lonardo (from left to right)

Innovation driven – just like Vlassenroot

"Valk Welding is a trusted partner for us"
- Jean-Pierre Pohlen

KSK in Schwerte, Germany, is part of the Vlassenroot Group and manufactures, among other things, telescopic booms for the crane industry. The bent half-shells are joined both with butt welds and with various lockings discs to form long, solid, U-shaped half shells to be later assembled into booms.

The welding of the crane booms is done in 2 stations. A suspended robot travels in the XYZ direction and can operate in both stations. The total length of the track is 45 m. The Robot is a Panasonic TM-1800 with Arc-Eye CSS camera system. The product weights can be up to 10-ton and the length can be up to 20m. The special feature of the two workstations is the central, very flexible displacement of the heavy-load positioners. The 10-ton manipulators sit on a rail system and can be moved to a specific position depending on the requirements. Various tests with software waveforms were performed and tests were carried out in advance for the welding quality requirements. KSK received welding software adapted to their needs. This is only possible because, in addition to the Panasonic robot, we also use the power source as an integral part of the system. "I can do the offline programming and creation of new programs very easily in the office because of the DTPS offline software. This feature makes my job much easier," says Filippo Di Lonardo. The DTPS software also comes from Panasonic and represents a fully comprehensive welding programming solution from a single source, without having to worry about interfaces or software conversion.

Safety
"Process-safe manufacturing is extremely important to us," says Jürgen Andree, engineering manager, who also oversees the robot projects. "In addition to arc welding, a few years ago we invested in a laser hybrid system that can process products up to 19.5 m long and weighing up to 32-ton. Here, the two half-shells (longitudinal seams) are welded, which were previously pre-welded by arc on the Valk robot. Since we are in the field of high-strength steels, the selection process is very important for us," Jürgen Andree continues. Two different welding wires in one component.

Two different welding wires in one component
In terms of steels, KSK processes grades ranging from S690 QL through S960 (QL) to Strenx 1300, Weldox or Hardox. The high-strength fine-grain material require not only classic preheating and selection of the appropriate welding wires, but also attention to welding parameters and special welding programs. During the robot installation, attention was therefore paid to the processing of different welding wires and the use of two different welding wires in one component. For example, two different welding wires are automatically fed to the robot torch via a Y-switch and the wire required in each case is fed into the welding torch by program call. Here, Valk Welding supplies everything from a single source - including the welding wire.

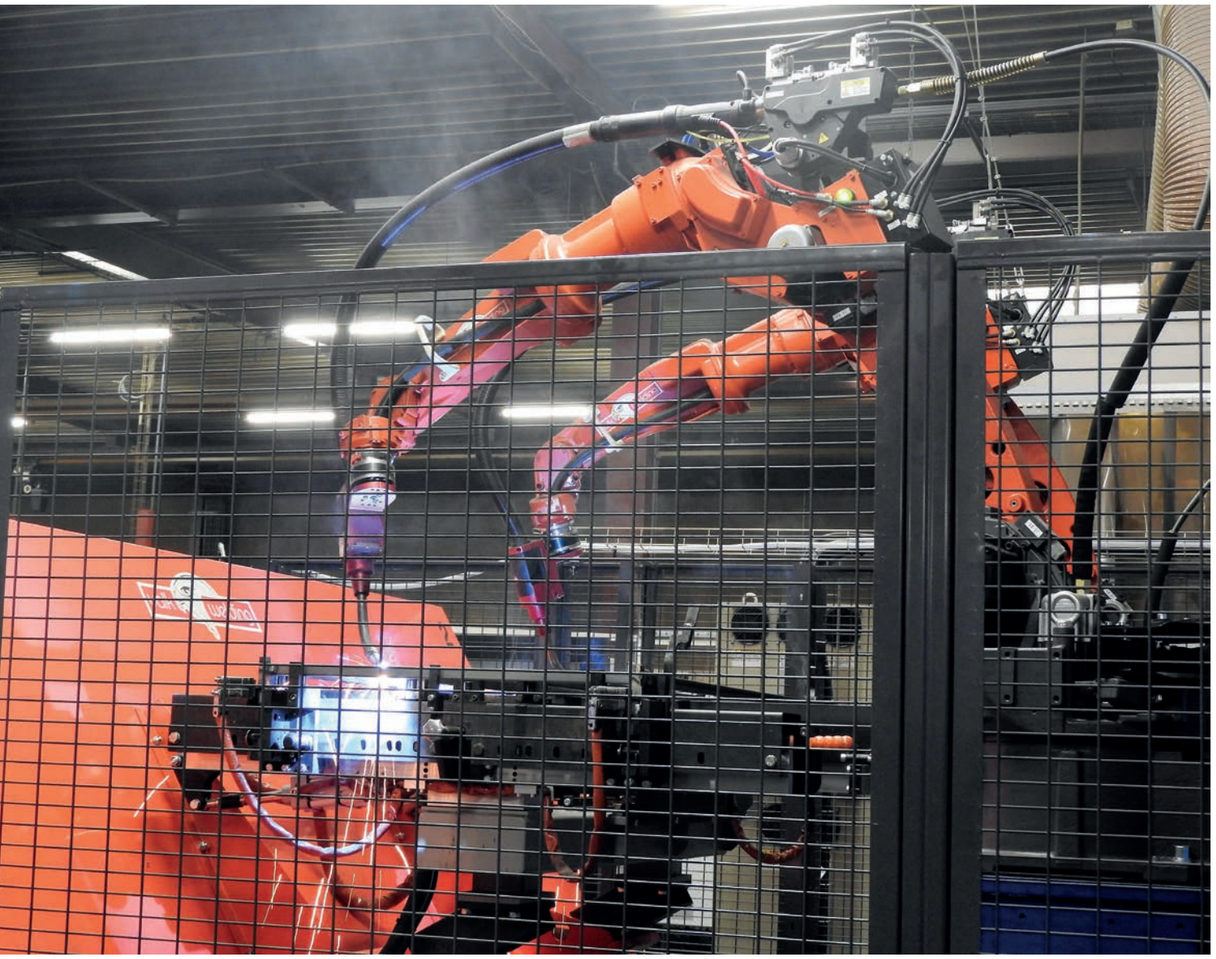
ARC-EYE DTPS

Arc-Eye
The Arc-Eye camera is used for seam tracking and monitoring during welding. "Thanks to the optical seam tracking via laser camera and the corresponding adjustment in real time, we can guarantee a reliable weld seam, even if the component changes position during welding," assesses Filippo Di Lonardo, robot programmer and welder. "In multi-layer welding of fine-grain structural steels, repeatability and secure joints are an absolute must."

The strong connection
"The versatile possibilities offered by the hardware and software made us decide to buy". Valk Welding was one of the few suppliers who listened to us and built a robot system tailored to our needs," says Jean-Pierre Pohlen, Country Manager Poland & Germany. "Valk Welding's good reputation and reference visits convinced us. It's often just the little things, but the many years of welding experience at Valk Welding and that everyone on the project team was looking for goal-oriented solutions really appealed to us."

"Valk Welding is a trusted partner for us," says Jean-Pierre Pohlen. "Innovation driven - just like Vlassenroot. Especially with such large special installations, good project support is important and that was the case with Steffen Schindler, project engineer Valk Welding Germany. He took care of our questions and the implementation of the tasks. He made our problems his and we appreciate that."

www.vlassenroot.be

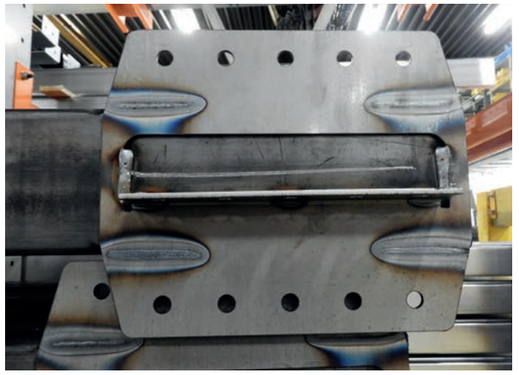


ManOrga boosts its robotic welding

At ManOrga, Valk Welding has installed nine robots, eight of them are welding robots. At the end of the year, the extension of 10,000 m², including 8,000 m² of workshops, encouraged the creator of metal shelving to invest in additional robotized welding equipment.

For half a century ManOrga has been manufacturing metal shelving systems, industrial platforms (mezzanine) and wire mesh partitions.

Located in Lys les Lannoy (59), its two current factories - 24,000 m² in total - transform 70 to 80 tons of steel every day. With a turnover of €65M, in constant growth, the company employs 250 people, supplemented, depending on the workload, by 50 to 70 temporary workers.



"We work almost exclusively on orders, 35 hours a week in two seven-hour shifts, and for each order, our design office details each platform according to the customer's requirements. Our organization allows us to respond to orders within 48 hours in the field, and throughout Europe. At the customer's site, each product and shelving assembly team works in close collaboration with ManOrga," explains David Duhamel, head of Industrial Engineering.

The raw material, of which the permanent stock represents several hundred tons, is supplied in the form of coils (metal coils from cold rolling).

To create its products, the company has more than 400 machines, including 11 profiling lines that unwind, straighten, punch, shape and shear the strips of sheet metal in order to create different profiles: posts, shelves, bottoms, ladders, rails, etc., at a rate of 12km of steel transformed daily and 800m² of platforms created each day.
Although the maximum thickness of the profiles is four millimetres, thicker accessory components (up to 15mm) are also required for the platforms and metal shelving.
After the profiling of the profiles, several welding operations are necessary to complete each component.

In order to industrialize this step, as early as 2014, ManOrga selected a Valk Welding TA-1400WG robot on a five-meter track, with a ferris wheel positioner capable of welding posts up to five meters long. The same year a second TA-1800WG robot was also integrated into the manufacturing lines.
In 2016, the firm invested in another TM-1600WG two-robot cell for welding rails. This unit combines a fixed robot with a three-meter linear transfer robot fed with parts, up to four meters in length, by a ferris wheel.

Building on its technological relationship with the European specialists in robotic welding, ManOrga repeated this in 2018 with another twin robot system equipped with a turntable positioner. The operator loads one jig while the robots weld on the other jig. Every 45 seconds one shelf with 5 meters of profiles and tubes are produced. Thus, 8,000 metres of tubes and profiles are processed every day.

Finally, last year, another installation with a turntable extended the manufacturing capacity of the shelves with two TM-1600WG robots.
"As for robotic welding, in addition to a custom-made HMI (Human Machine Interface), we have made some jigs and tools ourselves, but we were seeing discrepancies in the final quality of the parts. The integration of these parts requires a very high precision, which is now possible thanks to the cooperation with Valk Welding, for welded assemblies with exact strength and dimensional tolerances," continues David Duhamel.

Once welded, the shelving components will take on colours (white, yellow, blue, grey, red, orange, green...) as they will be finished on two 300 m long epoxy painting lines operating 14 hours a day.

Given its perpetual growth, ManOrga is currently building a new 10,000 m² factory, 8,000 m² of which is covered on its second site. It will be delivered at the end of 2022.
"With this extension, we are going to review the general organization of the site's overall layout to accommodate even greater production flows," says David Duhamel.
There is no doubt that this substantial extension will require new robotized welding equipment... To be continued!

www.manorga.com

Improved welding quality thanks to the use of welding robots

Mazurek Metal, a Polish company that manufactures a wide range of products, including conveyor systems for companies in the food and pharmaceutical industries, decided to invest in a welding robot to be able to deliver products with high quality welds that look nice. The company gained its first experience four years ago with the installation of a Valk Welding welding robot with two workstations and offline programming. This investment became the steppingstone to a second, identical welding robot installation, enabling Mazurek Metal to deliver to customers with high demands on welding quality. "We owe the growth of the company to our investments in new technology and new machines," - says owner Janusz Mazurek.

For the company with 130 employees, including 35 welders, the welding robots are a perfect complement to the high-quality machine park, consisting of Bystronic and Salvanini sheet metal lasers, a BLM tube laser and Safan and Amada press brakes. Partly thanks to the high accuracy and efficiency made possible by these machines and the expert knowledge of its employees, the company enjoys the trust of a large number of regular customers. "This has resulted in several long-term orders for, among other things, parts for conveyor systems, steel stairs, platforms, and steel structures. All these products are welded exclusively by hand, for which there is sufficient capacity and welding knowledge in the company. However, a new customer from the pharmaceutical industry required a higher visual weld quality with a constant, high repeat accuracy. You can only achieve that by welding with a robot," says Janusz Mazurek.

High demands

"Partly because of positive experiences from our customer Marel Stork and after talking to several welding robot integrators, we presented our requirements to Valk Welding. In order to weld the stainless steel and steel parts in a high welding quality, it was necessary to be able to weld both TIG and MIG with one welding robot system, in order to achieve maximum versatility of the installation". In addition, offline programming was an important requirement for Mazurek Metal.

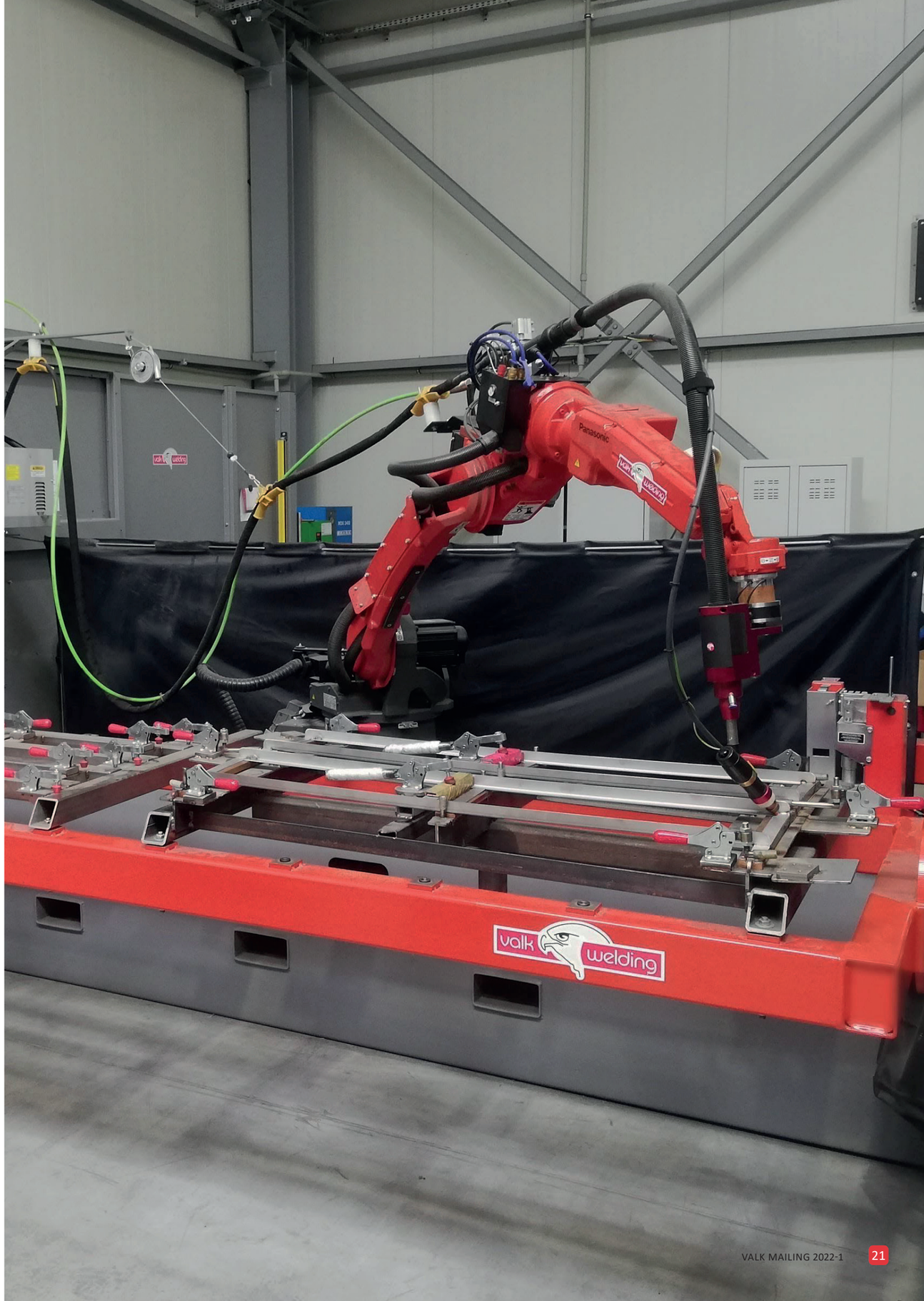
Welding robot on FRAME-H concept

Valk Welding delivered a standard welding robot solution, consisting of a Panasonic TM welding robot on a torsion-free and movable H-shaped frame concept with two workstations. That concept offers the advantage that both welding robot, as well as control, clamping tables, manipulators and shielding can be delivered and moved as a complete system. After the operators and programmers were trained in the Valk Welding Technical Centre, the first products could immediately be programmed and welded with the robot.

Constantly nice weld image

Since the installation of the first robotic welding system in 2018, all products for the pharmaceutical industry are now welded with the robot and the welding quality and appearance are the same with each product. This resulted in further orders for the company, after which a second identical installation was purchased in 2021.

www.mazurek-metal.pl



High-end automation for Power-Packer

That fact that Valk Welding can also successfully realize projects in a high-volume / low-mix situation is proven by the recently delivered production cells for Power-Packer. Per cell 600 hydraulic actuation systems (cylinders) are now completely welded, brushed, and assembled in a production flow every day. There has been an enormous improvement in efficiency, the lead time has been reduced from 2 weeks to 1 day and intermediate stocks have been eliminated. The use of a handling robot, double positioners in a ferris wheel concept and custom-built software play the main roles in this.

Power-Packer, part of CentroMotion, is the market leader in the field of motion control systems, including (electro-) hydraulic actuation systems for applications in automotive, commercial vehicles, medical and off-road industries. In Oldenzaal, hydraulic actuation systems are produced for Volvo and Scania amongst others.

Replacement of 28-year-old cells

In simple terms, such a cylinder consists of a base tube, a pipe (pull-tube) for the hydraulic oil and a plunger (Plunger-Rod End) which makes the movement in the tube. First, a coupler (base) is welded to the tube, and then the weld is brushed to remove possible residue from the weld so that the coating can adhere optimally.

The pipe (pull-tube) must then be welded 100% leak-tight to the coupling piece of the base pipe. As is customary in the automotive sector, this process is subject to very high requirements, which once validated cannot be easily changed. Two 28-year-old custom-built welding cells, with old-generation Panasonic welding robots, were finally in need of replacement, In addition, Power Packer also wanted to increase the efficiency. “No more intermediate stocks, shorter lead times, product traceability, a leak-free pull-tube attachment, and guaranteed uptime,” lists manufacturing engineer Peter Meijering.

Online meetings

For 1.5 years, the engineers of Valk Welding worked with a specially selected team on the development and elaboration of a solution, in which all process steps could be integrated into one production cell. Sales Engineer Alex Hol from Valk Welding: “For us, the challenge was to integrate welding and brushing in one cell, based on one robot orientation per product and one program for both cells. By means of online meetings, we jointly arrived at a final design in which each step was accurately simulated in Panasonic’s off-line programming package, DTPS. Ultimately, we succeeded in being able to operate within 1 second of the target cycle time.”

“By integrating all production steps, we have now created a one-piece-flow solution, in which the product is ready for packaging directly to the customer without intermediate storage”
- Peter Meijering

Deployment of handling robot

Valk Welding developed a solution based on a ferris wheel concept and 2 additional positioners. The double design allows 1 complete product to be made per cycle. Positioning of the parts is done at the front while welding and brushing is done at the back. For the brushing operation, a Panasonic LA1800 handling robot with 26 kg payload is used, which picks up the welded base tube with a gripper and and moves it along a brush unit. Alex Hol: “This enabled us to produce the base-tube and the plunger simultaneously, so that, for the sake of traceability, you always keep one complete set together.

Line production

Base tube and plunger are both hung on a conveyor that is long enough so that the products can cool down to be picked up directly at the end of the conveyor for assembly, filling, and testing. “By integrating all production steps, we have now created a one-piece-flow solution, in which the product is ready for packaging directly to the customer without intermediate storage,” says Peter Meijering.

www.power-packer.com
www.centromotion.com

Watch the video

DTPS

ZUIDBERG

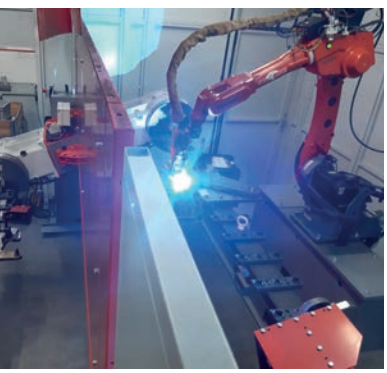
Zuidberg increases output with welding robots in ferris wheel concept

The ferris wheel concept is one of the standard frame solutions from Valk Welding, in which two positioning frames, as in a ferris wheel, always remain horizontal during rotation and the welding robot always welds behind the fixed screen. Zuidberg Components recently chose this concept to further expand the capacity in the robot welding department. Managing Director Vincent Schreuder and Senior Foreman Welding, Rudolf Koopman talk about the many advantages the concept offers.

Zuidberg is known as a manufacturer of agricultural solutions (front lifts, PTOs and tracks) and industrial solutions (transmissions and machine components). Within the group, Zuidberg Components takes care of the parts production for its 'own' products as well as for other machine manufacturers and producers in Europe (OEMs).

Replacement, renewal and expansion of welding robot systems

The company expects a growth of 50% over the next 5 years, with the bulk of the growth to come from the production and sale of front lift systems, PTOs, transmissions and components for OEMs. Within the welding department, therefore, substantial investments were made in replacement, renewal and expansion of the welding robot systems. Vincent Schreuder: "The existing Track-Frame-EE system with 8 stations is completely upgraded by Valk Welding with the latest Panasonic welding robots and controllers. We use this cell for high-mix, low-volume production".



Higher output

"For the fast running products we have chosen 2 standard C-frames with 2 workstations that change according to the principle of a ferris wheel. The operator is always in the same position and no longer has to shuttle back and forth between the stations (less logistic movements). Because both the jigs and the assemblies can be hoisted outside the welding zone, this way of working produces a higher output. A perfect solution for the larger quantities. Moreover, the ferris wheel concept requires less space and an additional welding light shield is not necessary because the robot always welds at the rear of the fixed screen," explains Rudolf Koopman.

Reduced changeover time

The jigs are mounted to the positioner with a zero-point clamping system on one side. To be able to load the positioner even above 500 kg, the frame on the opposite side is equipped with a pneumatic counter bearing. "The idea of the zero point clamping system comes from Zuidberg Machining where we have good experiences with Schunk systems for handling of the machining jigs. In addition to reducing changeover times, it allows us to clamp the jigs with 100% accuracy," explains the manager.

Valk Welding total supplier

"The reason we switched to Valk Welding in 2007 was because they were a total supplier that could deliver a complete system including offline programming and the corresponding welding equipment. The fact that a supplier thinks along with our strategy also plays an important role in the cooperation", emphasizes Vincent Schreuder.

www.zuidberg.nl

Tradeshows
2022

Elmia Automation
10.05 - 13.05 (SE)

Global Industrie Paris
17.05 - 20.05 (FR)

Mix Noordoost
18.05 - 19.05 (NL)

Métal Namur Expo
02.06 (BE)

Technishow
30.08 - 02.09 (NL)

Design to Manufacture
21.09 - 22.09 (BE)

Welding Week by NIL
04.10 - 06.10 (NL)

Expowelding Katowice
18.10 - 20.10 (PL)

EuroBlech
25.10 - 28.10 (DE)

www.valkwelding.com