

# HWH WELDTIMES

Newsletter for friends and business partners of Harms & Wende GmbH & Co. KG, Hamburg (Germany)

## HWH Innovation-Report

New versions of Genius and XPegasus released.

The innovation team has done a great job in recent months to optimize our successful duo Genius – XPegasus and to integrate further functions. The new versions Genius firmware (FW) V3.5 and XPegasus V6.4 contain optimizations and extensions for all resistance welding industries: Microwelding, Industrial Solution and Automotive. The Genius FW V3.5 has numerous feature enhancements. Based on feedback from the customer's environment, we improved existing

weld modes and quality monitoring. In particular, there are optimizations in the product IQflex (IQf), whereby improvements have been made to both the IQf controller and IQ inspector. Our new welding mode high speed current (HSC) for projection welding has also been optimized. The improved detection of expulsion in the SP inspector rounds off the changes in the Process area. Genius FW V3.5 now natively supports the integration of the new XPQS system. This means that both

systems work seamlessly together. Furthermore, a new function for demand-oriented milling has been included in the new version. In the new XPegasus, the new user customer service has been introduced for temporary access to limited service functions. Together with our service colleagues, you can use it to access a range of internal data. This helps enormously to quickly find a solution ...



*continued on page 2 ...*

## EDITORIAL

Since the last Weldtimes has been published time has gone by. And a pandemic changed a lot – it's over lucky enough – things are back what we call "normal". It was also time to have a new Weldtimes released since we have a lot to tell you. In summer last year we hosted the meeting for our international partner and gave them an outlook for what is new and coming – spread the word. We revised our website entirely and information as put there. Now with this release this is the continuation. From our partners perspective we have company Waudcray on South Africa on board to cover the market there. Our former partner Xmeco changed its business focus and it was handed over in February 2024. We work very intense in the United States gaining market share on the other side of the pond. So you will find us at the Fabtech in fall.

Finally on this editorial, we have long lasting relationships to our partners – CEFIP celebrates 30 years, about 20 years we walk closely together and it works wonderful. You will find more below. Now I do not want to withhold you from reading, please move ahead and enjoy.



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## Development informs

# XPegasus celebrates 20 years anniversary

Really? She looks younger than ever ...

The XPegasus saw the light of day on March 22<sup>nd</sup> 2004 with the underlying Manitu Framework and is now, almost to the day, 20 years old! Or rather, 20

years young. Because it still has its finger on the pulse with its modular concept. A look back: For the first few months, the software was developed at the IAF (Institute for Applied Research) in Karlsruhe as part of the SIOUX research project. The basis was born. A modular prototype that passed its endurance test by showing all the results of Harms & Wende's AI research at the time together with

the IAF in a functional model. The prototype proved the high performance of the software architecture and the results in small part welding with up to 400 welds per minute (Stanzbiege-Technik, Austria) as well as in the general industrial environment (Technax, France). The modular building blocks of the prototype take data, filter it and find the decisive features for the neural network. In the last step, the prototype carries out a quality assessment by a neural network. After completion of the research project, ...

*continued on page 2 ...*



Actual XPegasus Gold and Platinum

# HWH Innovation-Report

New versions of Genius and XPegasus released.

*continued from page 1 ...*

... in tricky situations. We have also taken on the area of interfaces. XPegasus now supports an MQTT interface with the „Production Perfor-

mance Management Protocol“ (PPMP) protocol. The interface, designed as JSON, is considered an IT protocol for Industry 4.0 communication of machines. This allows data to be tapped quickly and easily. With the feedback from the customer environment, an important optimization was also identified. This is the network-wide search function for the system configuration. Due to restrictions in the Windows network system, it was not possible to search on all networks

(WLAN / LAN / ...).

This limitation has been dropped with V6.4 and should help to set up the system more easily with Genius weld timers. Further optimizations in the area of OPC UA, spot assignment and HSC operation round off the innovations of the operating software. Of course, there are many other smaller and larger innovations. Our colleagues sales, service and your local partner will be



System overview XPegasus

happy to help you choose the best configuration, whether it's updating or re-equipping your systems. We at HWH will continue to stay on the ball with our innovation team in order to be able to continue to offer you good and forward-looking products.

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GeniusMFI408 IQflex

## Development informs

# XPegasus celebrates 20 years anniversary

Really? She looks younger than ever ...

*continued from page 1 ...*

Harms & Wende took over the software architecture of the developed prototype. The XPegasus Basic V0.9 saw the light of day in March 2007. Over time, the XPegasus software outgrew its infancy and became an important part of today's welding systems from Harms & Wende. Together with our

Genius inverter, the perfect process equipment for a good weld, XPegasus, our powerful software tool for operating, operating, and documenting, forms an unbeatable team for the welding industry.

After expansion of the software from a stand-alone solution to a client-server software with database connection to the most important databases of our customers, the XPegasus was optimized for ergonomics and customer benefits in our main areas, small parts welding, the industrial environment and automotive. Over the years, the modular basis of the XPegasus has also become interesting for other companies. With the company Düring, our first partner, the XPegasus Panther was added to the operation of servo pliers in resistance spot welding. With Klingel (now Atlas Copco), we expanded our modular software to include the operation of a non-welding process,

flow hole screwing with the customer product XFlow. And with our technology partner Nimak, we fully integrated their current servo welding gun system into the XPegasus. The software modules are also accessed from the HWH Group. The HWH-QST with its new product, the XPQS, now also belongs to the large circle of XPegasus users. Within Harms & Wende, XPegasus, which has grown up, gradually gained in addition to the well-known precious metals silver, gold and platinum. The family has been expanded to include Rotav for rotary joints and, most recently, XRotus in 2023 for friction welding.

Currently, a total of 11 S ...



Images from the first XPegasus

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# Procon reports



## Successful implementation of a MPS7043 cross wire weld timer in Thailand.

Harms & Wende looks back more than 75 years of successful activity in the resistance welding market. In the present case, a cross wire weld timer system MPS7043 is due to be replaced after 32 years of operation. Today, we solve lattice welding tasks in AC technology with our SiniusAC3. Up to 48 transformers can be operated in a coordinated manner in a single MPS7043-2. The functionality of this

more than 30-year-old weld timer with vacuum tube screen is replaced by the new 7043-2 Sinius-Multiweld device with a Siemens S7 PLC and a rack of SiniusAC3 modules. The existing 6U 19" installation space is used.

Wiring of the new device is done on terminals, so that the existing plugs have to be cut off and the individual wires are wired to the terminals.

Mechanical and electrical conversion is usually done in one day.

Existing weld schedules have to be transferred to the new system by hand. The input masks in the Siemens HMI are based on the previous system so that the changeover would be as smooth as possible for the operator. After entering the weld parameters, the system was put into operation.

As is so often the case, there were surprises. For example, transformers connected in parallel were incorrectly connected on the primary side, resulting in a short circuit.

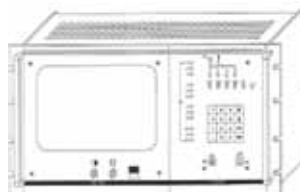
After the short circuit was eliminated, compensating currents still flowed when the electrodes were open. This was due to different transformers and a simultaneous parallel connection on the secondary side. The PLC and the positioning control system of this system were also supplied by Harms & Wende at that time and are still in operation today.



Machine outlet with wire grid



AC welding transformers with voltage preselection



SiniusAC3-PNle with 4x SiniusAC3-Slave



SiniusMulti for up to 15 transformers



HWH positioning system from 1992

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## Small Encyclopedia of Welding Technology

In the German language version of the Weldtimes is a section where weld specific terms are explained which is well received. So the idea is born include this in the Weldtimes as well. Here we go.

### Issue 1 – User Interface XPegasus OPC

Under the heading „Small Encyclopedia of Welding Technology“, Schweißzeit presents terms, processes and technologies from the world of resistance welding in each issue.

Today's issue describes the OPC data exchange standard and the possibilities of the XPegasus software for this format. OPC Unified Architecture (OPC UA) is a standard for data exchange as a platform-independent, service-oriented architecture (SOA). It introduces the ability not only to transport machine data (control variables, measured values, parameters, etc.), but also to describe it semantically in a machine-readable way. All basic services (base services) defined by OPC are abstract method descriptions that are protocol-independent and provide the basis for the

entire OPC UA functionality. Through the transport layer, these methods are executed using a protocol that serializes or de-serializes the data and sends it over the network. At the moment, two protocols are planned for this purpose: a highly optimized and high-performance TCP protocol with binary coding and a protocol based on web services. Other protocols are possible and can be added if necessary. For flexible integration of process data into different higher-level customer systems (up to the cloud), the XPegasus Platinum OPC version is available. The OPC UA open communication standard described above can be regarded as the world language for industrial technology and also enables welding systems and welding systems to communicate with each other. The functionality of the integrated

interface not only enables the archive data to be accessed, but also transparent and extensive machine-to-machine communication (e. g. with PLC), which can give the user many advantages in the design of the system architecture. With an OPC UA interface in the XPegasus database, the additional component-related test data can be archived, such as the measurement data from ultrasonic, test cameras, etc. On the other hand, it can be used to transfer the selected archive data from XPegasus to the higher-level central database in order to further manage it according to the user's selected individual IT concept. For further information, please contact your Harms & Wende partner or the HWH Group team. They will be happy to help you with any questions you may have.

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# Harms & Wende worldwide

Information from the markets.



## Türkiye / Germany – Istanbul & Gelsenkirchen

### 30 years CEFIP – Congrats from all of us

Long time back a family came from Türkiye to Germany with great expectations. The son Necdet still studying started to work at companies and at one day he quit the job and started his endeavor. He started his own company with the goal to import technology into Türkiye.



The company settled down in Herne and with hard work, effort and sympathy it grew and more employees joined. About 20 years back a small company from the South of

Hamburg came in touch and the relationship has grown over the years and CEFIP became one of our very important international partners. We support each other and I allow



me to say all is friendship – long lasting.

30 years – a long time – now with two generations. During the impressive inauguration we heard speeches from

Necdet and Mohammend – two generations working together – continuity is guaranteed. From all of us in Hamburg, all our sister companies we wish you all luck and prosperity and we are grateful for our friendship.



## South Africa

In South Africa, Fa. Xmeco held the flag high for us for a long time. As the owner, Robert Exely has now reoriented his business and is exclusively engaged in the casting of materials. Together with Mark Waudray from Waudcray, we have now initiated a transition. Waudcray Pty takes over the representation in the country with immediate effect. Waudcray, like Xmeco, is based in Port Elizabeth at the Indian Ocean. The first joint customer visits have already taken place at the end of January 2024. This is now followed by further training courses for qualification in Hamburg in summer 2024. Together with Waudcray, we are strengthening our position in South Africa. Meet us, lets shake hands.



## Finland

Together with our Swedish partner BM Svets and an integrator, we are implementing a larger system for the production of cable trays.

These trays are used in construction projects. The customer itself has numerous branches in Europe. The plant will be located in northern Finland and is designed for high throughput. It's not the first plant we've equipped here. Expect more to come.



## Sweden

There's always something going on with our neighbors to the north. Existing systems are currently being updated at a customers site. The components delivered in 2006, such as inverters HWI28xx and transformers, have done their job successfully and reliably. Now new GeniusHWI units and new transformers are being retrofitted. The existing cabinets will be retained. Matching EA profiles make the transition almost a plug-and-play job. This provides the customer with state-of-the-art control technology with a high degree of sustainable and resource-saving reuse of cabinet components. In addition, a new production line is being set up. The support provided by BM Svets is 360 degrees, covers any need. Vi ses snart igen.



## Poland

### Trainings across departments.

At the beginning of February, we conducted two training courses at the sites of a local supplier. This involved the concept developed together with the customer with the use of standardized inverter types with the adaptive control IQR, the extension to the IQf control system and much more. We also spontaneously included current topics and responded to the questions that arose accordingly. In the two rounds, solutions were then worked out together. The training sessions also included a joint tour of the production facility as an update for us. At the same time, we talked about current affairs on the line. We were overwhelmed by the fact that we saw about 50 participants on two days. This was far more than we expected – even the organizers on the part of the customer were positively surprised by the good response. Our Polish partner APWeld was in its element and large parts of it were in Polish – which makes a lot of things easier. This is followed by further in-depth training, which then relates to individual topics. We will report.

### Fairs 2024

We are present on a number of fairs during 2024 where look forward to meet you. Here comes the summary:

- Winfair Istanbul (Türkiye) (Your Host: CEFIP) 5<sup>th</sup> to 8<sup>th</sup> June 2024
- AMTS Shanghai (PRC) Your Host: HWH China) 3<sup>rd</sup> to 5<sup>th</sup> July 2024
- Expo Welding 2024 (Poland) (Your Host: AP Weld) 15<sup>th</sup> to 17<sup>th</sup> October 2024  
International Congress Centre in Katowice (Poland)  
Plac Slawika i Antalla 1  
40-163 Katowice
- FABTECH Orlando (United States), 15<sup>th</sup> to 17<sup>th</sup> October 2024

Come along and tell your colleagues. Look forward seeing you.

### Simplified internal routines

You've probably already noticed that our offers, order confirmations and other things have changed. We have launched our new ERP system and it offers groups greatly simplified processes for your benefit. To put it simply, there is only one database and everyone no longer has to maintain their own data. That makes the work much easier. As with any transition, the beginning is not always without problems. Most of the hurdles have been overcome and things are running smoothly.

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## Research

# New research project MAGICIAN kicked-off

Assistant systems for operators in automotive industry in focus.



Anyone who has ever dealt with the rework in body-in-white construction is familiar with the procedure: diligent hands can feel almost all errors that have occurred during the pressing of components, during handling or during the various joining tasks and that have a negative effect on the appearance of the new wheeled vehicle. These are mainly dents of any shape and size, burrs or the remains of welding spatter. Finding them is laborious and the workers are exposed to noise and dust when removing them. In some cases, they also have to use a lot of muscle power. All in all, an elaborate and

laborious procedure. The MAGICIAN project, funded by the EU Commission, has set itself the goal of supporting workers in detecting and eliminating errors and, ideally, optimizing processes so that no errors occur at all. With such a complex task, the consortium must be set up accordingly. The 11 partners from 6 European countries are made up of universities, research institutions, system integrators and end users. Of course, we at Harms & Wende take care of the welding process. Our aim is to quickly detect quality-relevant variables such as spatter, to provide information on the type and effect of the defect and to use intelligent, AI-



Projectteam at the kick-off meeting

supported algorithms to regulate the welding process in such a way that the occurrence of defects is prevented. The task therefore fits seamlessly into the already proven functions for intelligent process control and quality monitoring of our Genius control system. MAGICIAN was launched on

October 1<sup>st</sup>, 2023 and has a duration of 4 years. Of course, we will keep you up to date regularly during the welding period and on our website. You can already find some impressions on the project page on LinkedIn.

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## Solid state welding (Friction welding)

From request to success: Your project is in good hands.

From your request to success: We make it happen with you.

At Harms & Wende, every successful friction welding project begins with a detailed analysis of your requirements. Here we lay the foundation by looking at the following aspects of your welding task:

### 1. Suitability for joining

Is the material and steck-up suitable for solid state welding?

### 2. Joining safety

Is the design of the welds from the location suitable for solid state welding?

### 3. Joining option

Does the friction welding process meet your requirements for subsequent series production?

Thanks to our many years of experience in rotary friction welding and friction spot welding, we can already assess the feasibility in the initial consultation. Through an intensive exchange with you, we understand your requirements and goals.

The test phase follows, in which we test the feasibility by means of test tests in the welding laboratory on the basis of the samples provided by you. For you as a reader of Weldtimes, this first test attempt is free of charge – just send me an e-mail and refer to this article. The test attempt is crucial because it forms the basis for the entire



View into the friction welding lab

project. Only when both you and we are convinced that the connection meets your requirements do we take the next step. In further tests, we demonstrate the process capability with you under conditions that are as close to series production as possible. At the same time, our engineering team becomes active and creates an initial design for a possible series system – whether manually operated, semi-automated or fully integrated into a production line. Over the decades, we have implemented a wide variety of concepts. Always with the focus on achieving maximum productivity in the end and thus deriving the greatest possible benefit from the use of friction welding technology.



Typ. machine frame



Solid state welded parts

Register now for the next webinar

[www.harms-wende.de/web-seminare-harms-wende/](http://www.harms-wende.de/web-seminare-harms-wende/)

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# KAPKON GmbH installs latest machine equipment in the lab.

Year 2024 began for KAPKON GmbH with the relocation of the lab equipment in fresh renovated rooms at Max-Planck-Straße 23 in 32107 Bad Salzuflen (Germany). KAPKON has now access to different projection welders with their high-level CD (Capacitor Discharge) power sources:

- CD Single Pulse (SP) and
- CD Dual Pulse technology (CP)

Any CD unit require as advantage to the customer significantly lower fusing between typ 16 and 125 A.

## The entire lab-portfolio consists of:

- **C-Frame KKC 12/18 – CP** (max. electrode force ca. 30 kN, max. weld energy ca. 18 kJ, max. peak current ca. 180 kA)
  - Weld tasks i. e. projection welding of
    - Weld nuts, sruds, screws
    - Gas springs, Airbag-burst washers
    - Porose transport layer PTL
    - Hot gas filters

- **Portal frames KKP 12/18 – CP** (max. electrode force 30 kN, max. weld energy 18 kJ, max. peak current ca. 210 kA)
  - Weld tasks as on the C-frame, but much more rigid frame

## • Under construction: new KKP 170 – CP

The improved design of the KKP – CP combi pulse technology will be available from May 2024. Mechanical and electrical features have been revised and ad-

opted to customers needs. Reaching a maximum weld energy of up to 169 kJ up to 1.500.000 A are reachable. Suitable joints are for this type of machine:

- Projection welding of gearbox components
- full-surface filter welding,
- welding of expanded metals
- welding of expanded metal laminate
- Mesh welding
- Welding of bipolar plates
- Welding of pressure accumulators

All this new lab equipment serves to make case studies for customers. This allows to help customers out in very early development stage to make trials and work out methods to make things happen. Also small scale paid jobs can be processed as well. You are more than welcome to pay a visit or make a joint on-line meeting to find out more.



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## KAPKON expands Sales force

KAPKON GmbH strengthens the sales team by Mr. Jörg Winkler (M. Sc. M. E) in the position Head of Sales. He looks back on multiple years as global B2B sales. In his career he has long term experience in weld processes, especially in resistance welding and automation. Joerg, welcome to the team.

Contact: Joerg Winkler (Head of sales)  
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Remark: The character "ö" in german language is substituted by "oe" in English text

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## Harms & Wende LP goes FABTECH 2024

This year Harms & Wende LP exhibits the very first time at the largest weld fair in the United States in Orlando, Florida. KAPKON shows a brand new capacitor discharge machine UL-ready KKC-18 CP (combi pulse). The machine comes with a rigid frame allowing electrode force up to 30 kN and a max weld current up to 180 kA.

Samples will be shown during the fair – this says more than 1000 words.

We also show high-end inverter technology by Harms & Wende reaching from 100 A to 3500 A max output current. Different solutions will be presented for processes as spot welding, seam welding or projection

welding. Inverters and CD technology are not contradicted. They extend each other – there is always a solution – with this technology or the other – we have it in house. We look forward seeing you.

Location: Orange County Convention Center  
Orlando, Florida, Booth W5274  
Time frame: October 15<sup>th</sup> to 17<sup>th</sup> 2024



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## Technological News

# High Speed Current HSC

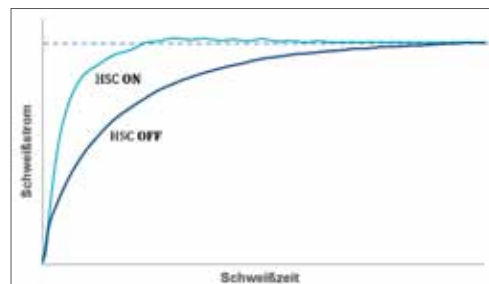
High Speed Current (HSC) option for GerniusHWI inverters extends the range of applications of your projection welding machine. Our High Speed (HSC) Current software option for our Genius inverters has now been tested by many customers and included in the standards. The option is particularly valuable for projection welding on hot-formed materials with AISI coating and is therefore actively used

by many automotive suppliers, among others. Designed as an integrated component of the XPEgasus operating software, the HSC mode improves the rise dynamics of the welding current of your machine and thus increases the effective process performance in your application. The use of the new software is worthwhile not only for the new machines, but also as an upgrade for existing Genius Inverters. With the second scenario, a machine at the well-known Tier 1 customer was recently retrofitted on a test basis. A special feature of the application was the welding over double sheets with so-called patch parts, whereby two sheets are dotted together before pressing. Even in this demanding application, the rapid build-up of the welding current has shown its clear advantage. The head pull force values have become on average about 50 %

higher than in the reference process before the upgrade. In addition, a significant increase in process stability was demonstrated by determining the process capability indices Cpk before and after the upgrade. According to the test result, the customer took over the established process with HSC into production and retrofitted several other welding machines with it. If you would like to take advantage of the HSC option for your hump applications, please contact us on the subject!



Image of a High Speed Current projection weld



Current raise with and without HSC



Example of a HSC projection weld



GeniusHWI436 Professional (PRO) with HSC Mode

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# Extension of the new IQR IQflex (IQf) keeps you flexible

Short commissioning times and seamless operation are in focus when running IQflex. The IQflex adaptive package is specially optimized for these requirements and guarantees the safe spot welding of steel

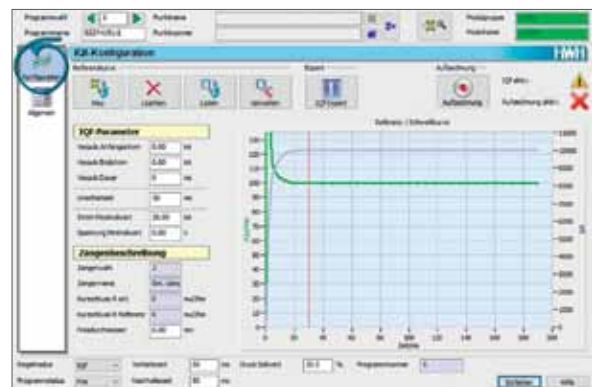
materials. By means of the process resistance, which is recalculated every millisecond, the IQf controller adapts weld current individually to the requirements of each weld spot. The IQ-Inspector monitors the quality of each

weld and thus helps you to fully meet customer requirements. A successful implementation of our new technology package was realized in a pilot project at our well-known customer in the automotive Tier 1 sector. For this purpose, a new weld system, which is intended to solve the most demanding tasks in the spot-welding sector, was retrofitted with the new software. Since the proven IQR controller and monitoring with the Q-Inspector are still available in the new IQflex package, the customer was able to ensure a smooth transition from the previous state and eliminate the production risk when implementing the new technology. The advantage of the combined use of two control algorithms was



quickly recognized even during commissioning: the event-based control IQR ensures fast initial parameterization and the reference-based control IQf ensures the transition to series production. The pilot plant was then released for production at the customer's site, and at the same time further plants are being planned for retrofitting. If you would like to take advantage of our new technology package for your production, please contact us on the subject!

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XPEgasus HMI IQflex operator window

# HWH informs

New panel assembly center and education.

In the last few issues, we have reported on the move and the realignment of our control cabinet center. The responsible colleagues took advantage of the opportunities and at the same time optimized workflows and processes. The production flow of material delivery, picking, production, testing and shipping has been significantly simplified and made

more efficient. A positive side effect is that working conditions have been improved at the same time. The new workplaces were designed according to ergonomic and individual aspects and adapted to the specific conditions. Of course, it doesn't stop there. In February, another workshop was held with external support to further improve productivity and efficiency. The best ideas and suggestions always come from the people who are working on things in concrete terms. Under this premise, the individual processes, workflows and communication channels were examined. In the process, further potential for improvement and suggestions for



Completed weld panels ready for shipment



Education certificate 2024

improvement came to light. There is nothing that cannot be further improved. The continuation of the internal workshops to implement the ideas and leverage the potential has already been concretely agreed. Not only the experienced colleagues are involved, but also the new ones and the trainees. The mixture of experience and new unbiased ideas brings the

best solutions. Speaking of trainees, the new colleagues introduced in the 4/23 welding season have familiarized themselves excellently and also made their contribution. The first trainee for 2024 has also already been found!

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## What is to do? ... in Porto, Portugal



Famous Ponte da Arrábida



of the Douro river valley – here a tour through the cellars is a tip to do and enjoy the scenery at night down at the river in one of the many

downhill. When you get wet feet – here you go – you made it through. Questions: On brand of Portwine you see a man standing with a hat and coat.

What is it for a coat and way does the person carry both items? When you visit the city you will find out – there is a reason. You will also find out why so many cellars have English names.

Porto in Portugal is, how can I say the small brother from Lissabon – two lovely cities, I will not say old since they both have so many young people around and there is live everywhere – not 24/7, but close. Porto is most likely known to you from the famous soccer team and the dessert wine made by grapes

restaurants. Enjoy the freshness of the city and live, it's wonderful. A car is not needed as you keep in the city, public transportation works all over the city. Find a hotel downtown many things are also in reach by just walking. Finding the way to the river is easy, walk

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### Your Harms & Wende partner

### Events

- **Fair AMTS**  
Shanghai, China, 3<sup>rd</sup> to 5<sup>th</sup> July 2024
- **Fair aluminium**  
Dusseldorf, 8<sup>th</sup> to 10<sup>th</sup> October 2024
- **Fabtech**  
Orlando, USA, 15<sup>th</sup> to 17<sup>th</sup> October 2024
- **Messe EuroBLECH**  
Hanover, 22<sup>nd</sup> to 25<sup>th</sup> October 2024

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