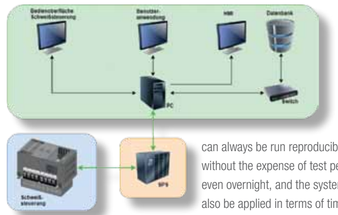
Integration test and test bench

Quality has highest priority.

Today, the tasks of a welding control only partly include the regulation of the process variables and the sequence of the welding program. Various tasks have been added, such as the management of welding schedules, the archiving of actual data, intelligent higher-level adaptive controllers, measurement of process variables in addition to current, voltage, force, such as temperatures, travel and monitoring functions.

The bandwidth gaines from simple mean value monitoring via envelope monitoring to inline monitoring with pattern classification. In addition, the controllers also offer various options for trend analysis and self-diagnosis.

Another indispensable task is communication with the machine or robot controller. Today various fieldbus systems are used, from Profibus, EthernetIP, DeviceNet, Can Open, CCLink, EtherCat to ProfiNet. Depending on the features of the system and special requirements from the customer system, different I / O profiles are used. All described functions and properties form a complex internal system, whereby the individual functions can interact with each other. Combination of these features and functions gives many device variants.



AutomaticProductIntegrationTest (APIT)

This large number of device variants results in an even greater number of necessary functional tests, which must be driven with and without disturbances. HWH has been working in the area of welding control integration testing since the introduction of fieldbus systems with automatic function test for device testing. This has the advantage that once automated, many different test sequences can always be run reproducibly and without the expense of test personnel even overnight, and the systems can also be applied in terms of timing and communication interface can be tested.

Due to these requirements, HWH can ensure each released software has gone through an automatic full test. Even with minimal changes to the software during the release phase, the complete test is then repeated. The test system performs this always the same, accurate, reproducible and independent even during lunch break and at night. In order to keep up with the continuous development of the welding controls, we also must constantly develop our test systems.

An important guideline besides the increased test depth is the increase in efficiency of the test procedure. In addition to a powerful PLC for processing the test sequences, our new test bench also offers a connection to our test database. Here are the different test programs for individual test cases stored and managed. The results of the tests are stored in the database and can be retrieved and compared at any time. For example changes in the execution behaviour of new software versions can be detected immediately. To document software product type releases, a test log is automatically generated after a successful test pass. Everything for highest quality and reproducibility.

The inverter has something to tell you

Litteraly.

Many of our customers are asking for an easy way to communicate with the inverter while it's in operation. He also does that from home. Each of our Genius inverters, be it a HWI or MFI (there are only a few exceptions), have a backlit display.

This shows in an all-round menu:
- IP address
- Firmware version
- Messages
- Load
- Checksum

To do this, just press a small black button near the display and change between the entries in a ring exchange. Most important are the messages and the IP address. Messages run through the display when and if a red LED is lit.

The operator can see immediately that one or more messages are pending. By means of a table in the welding box door one can directly see the meaning and remedy. It is not necessary to connect a laptop.

This small display is big in its effect – even in dark surroundings thanks to backlighting.

What's up in Hamburg?

Musical city.

Images: Stage Entertainment

We look often on far away activities but barely on activities home. So what's up in our home town? Well it's not easy we can fill a book with activities in town. To select highlights, Hamburg is the city of musicals and cruising tours.

For details visit: www.hamburg-tourism.de/sehen-erleben/musicals-shows

Dear Uwe,

have a good time!


Horst-Uwe Siemßen

Many of you know one name of us since many years: Mr. Horst-Uwe Siemssen. He joined our company 30 years where worked in development, head of development and as right hand of our general manager Mr. Bothfeld.

Now the time did come to say farewell and welcome to the family – his wife and kids will enjoy many days together.
Keep moving with his and wife's sport activities: dancing.

We wish him a wonderful retirement time which he deserves big time.

I allow me to say thank you from the bottom of our hearts,

All your HWH crew … keep in touch.

Running for others benefit

Who really needs it.

Since some years back we join to the Commercial Bank Run (formerly HSH Nordbank Run). The run takes place in June each year and this year 2000 runners supported by running and donating the charity „Kids help Kids". The run moves through the new harbour city. To give a figure 2018 signifcant 164656 Euros have been raised to support. The charity „Kinder helfen Kindern" (Kids help kids) has been founded in 1975 by journalists of the Hamburger Abendblatt. The run takes now place since 2002 and is one of the most popular activity of it's kind.

2019 running team


The final

Hamburg Commercial Bank RUN 2019 HafenCity

Events & fairs

- AMTS Shanghai (China) 2020 July 03rd to 7th
- EuroBLECH Hanover (Germany) 2020 October 27th to 30th
- Welding & Cutting Essen (Germany) 2021 September 13th to 17th

Your Harms & Wende partner

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Weld TIMES

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

Editorial

Dear reader,
it's time to get a new WeldTIMES ready for you, one year has gone by. When I am looking back what has happened the last twelve months, we were running through a great success grace to your confidence in our products. In China we are sending about 2500 weld timer boxes alone 2018/19. A major order in white ware industry is currently in process (July 2019). Thank you very much!

I started to write this WeldTIMES in my hotel room in Beijing after completing the AMTS fair in Shanghai. Here we are joining the third time and the second time with own booth. We have seen many friends and customers from China, South Korea, USA and other countries. Our Chinese crew is working hard to build our brand name, and it pays off. New requests came in during the fair and after. Now my colleagues and me get around and follow up the requests to help customers further.

We have noticed that the interest in China and other countries with respect of aluminium joints has changed – from aluminium joints only to mixed material products mainly aluminium to steel. My interpretation is price reduction one side and product safety one the other side. Let's see how the trend continues.

Have a look on this new issue of out WeldTIMES and we hope you enjoy reading!

Yours,
Jörg Eggers

Jörg Eggers
Export Manager
joerg.eggers@harms-wende.de

AMTS fair Shanghai

A platform not only for automotive business.

As mentioned in the editorial Harms & Wende Welding Ltd. did join the third time this four-day fair. We decided to move from the Welding & Cutting Beijing to this fair since the focus of the AMTS does match better our business. Since most major players in our business segments also moved over to this fair the opinions are similar.

We had the pleasure to welcome customers from current major customers as well as new potential ones. So far most of the equipment is used in Chinese-foreign cooperation products and now our products are drawn in products for other local brands. This is the result of hard work of our crew in China the recent time.


Mr. Haoqi Su explains


FAW delegation in our booth


Lets talk Industry 4.0

Our Korean partner MDT came all the way to Shanghai to discuss about coming projects in Korea and other places – Korea is not far – a perfect moment to meet. Thanks for coming & see you soon!

Generally, the fair was slightly slower this year – but not very much. Compared to other markets China is still developing fast. It was not very difficult to decide to return to Shanghai next summer. See you 2020 in Shanghai on the AMTS, our booth is booked.

• • • INDUSTRY 4.0 TREND • • •

Keeps moving and we are ready.

Industry 4.0 is a term used since longer and was developed the recent years. I was joining a meeting in Guangzhou and each company had a different opinion about this. Since this year in welding the trend became more clearer: Company wide data collection & evaluation. Of course we provide solutions for these topics which we present in the next articles.

From different markets

Harms & Wende worldwide.

China

China is the biggest export market of Harms & Wende where we are present with own subsidary and staff. We recently added new staff members, one for sales and one for service. For this particular reason we run trainings.


Training lesson is ongoing


Discussion if all is understood

Here we are in class gaining competence. Many good questions came up – there are no stupid questions – just good ones. The goal is to provide our customers better and quicker service for standard and special applications. In the warehouse we have many weld


Inverter panels in Beijing for delivery

panels at intermediate stop. They rest here for a short time until shipment is agreed by the final customer. Panels shown in the image are for a major automotive Chinese customer. Special vehicles will be welded with these panels. Harms & Wende Welding Ltd. holds a stock of standard panels, inverters and spare parts for quick delivery and quick repairs. Equipment that needed to be repaired, does not have to leave the country.

Italy

From Italy our partner Corotrat and Harms & Wende Hamburg won a big project in white wear industry. This was a close cooperation between our Hamburg Headquarters and Torino. The customer is in Germany while the integrator is located in Italy. However, the completed production line will weld household bake ovens in the United States later on. This is a global project and more orders are about to come.

Korea

Our South Korean partner MDT is constantly on a good track since its formation in 2006. The staff members have established a good business not only in Korea but also in the overseas branches of Korean companies. There are installations in the United States making parts for a Californian car maker, Thailand for baking ovens, Germany, Slovakian Republic and others.

MDT Co.,Ltd

To accommodate the change of the Korean market MDT recently made a three days conference in their facilities. About 500 guests appeared, Mr. Kevin Lee told us during the AMTS fair in Shanghai. MDT installed a number of different joining technologies suitable to join all materials Korean automakers are working on. The strategic goal of MDT is to be a one source solution provider for joining technology.

USA

The United States is a market that we work hard in and it has paid off. We working with and have received orders from tier suppliers and integrators. Customers are spread out on the along the East Coast and Mid-West. This is the reason why we chose the Detroit location as our US Headquarters. Our technician is knowlegeable across other vendors equipment which enables him to point out our strengths. Along with our sales crew we have a powerful team in the country supported by our Hamburg office. Apart from MFDC systems we received orders for Primus compact high frequency welders. Here equipment for construction industry is produced. Primus replaces previous equipment which was complicated to use. Primus offers many different welding options in one system only rather than using various systems. Its much simpler to use and learn.

A glimpse in our production

Optimized slim-lined processes and more for higher production capacity.

As always in life, every medal has two sides. We notice this at Harms & Wende in capacities and delivery times. For many years, we have increased our efficiency and expanded capacities in both space and technology. Quantities can now be produced that were unimaginable 5 to 6 years ago. Our order center has laid the organizational basis for this and created the production-technical prerequisites.


Production line inverter


Before shipping

Due to the very good project and order situation, the current concentration of orders in almost all areas, despite the above-mentioned increases in productivity, efficiency and capacity, leads to a "mountain of orders", which unfortunately is only slowly being dismantled. Can.

These are the downsides of this positive development. Nevertheless, at Harms & Wende we try everything to minimize the delays. In the productive areas, overtime is worked and on weekends, the partners and suppliers are actively involved, and additional premises are used. Despite all these additional measures, it will not be possible to meet all delivery dates as desired. We ask for your understanding. For upcoming orders, please contact us early. Then we can plan the demand accordingly and ensure scheduled delivery. Most of the above-mentioned "order mountain" will be delivered by the end of August. As a result, and through the further measures for optimization, we expect better delivery times again. Sales will keep you up to date and we will continue to report.

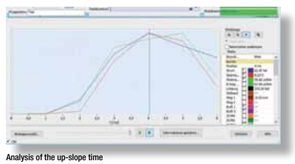
Technology corner

Projection welding

Fast as it can be with standard MFDC technology.

Medium-frequency welding is successfully used for projection welding. For some applications capacitor discharge welding (CD welding) with the high secondary voltage provides special advantages due to the extremely fast current rise. But also, medium-frequency systems with high secondary voltages can realize steep current rise times and the application practice. A medium-frequency system has been used for this application, as a much wider range of products can be welded and the system is very flexible and therefore economical can be used.

Harms & Wende offers standard high-power inverter of the type Genius-HWI4340, HWI4345 and HWI4360.


Analysis of the up-slope time

Inverter output currents up to 3500 A can be achieved. The possibilities of MF welding technology with high secondary voltage offer great advantages here, since a very good scalability in the application can be achieved. A standard weld schedule with regulated current can be used in comparison to a non-regulated CD schedule.

As with CD welding systems, a low-impedance secondary circuit is required. In the system design, connecting cables of 35 mm² with a length of 35 m were used. The connection from the inverter to the MF transformer is approx. 3 m and was carried out with 70 mm² cables. The fact that more copper was used in the secondary circuit can be seen here. The good welding quality and the satisfied customer are the result of this project.


Inverter weld panel


Projection welder in operation

range of these cost-effective and easy-to-regulate technology. Using the example of a projection welding system with low-intermediate secondary circuit and MF transformers with a secondary voltage of 21 V, currents of 60 kA and current rise times of 4 ms can be reached in

Electro mobility, an interesting project

A tailored solution.

In this article we describe an application to show you our product range. This application is about compacting of cables which requires special tools. The most extensive parts in this project in the field of micro welding for a North German special plant manufacturer realized.

We produced two automated production lines for a well-known automotive supplier on which components for electric vehicles are welded. In the process, contact lugs (as a projection welding connection) and compacted connecting wires are welded to contact lugs on a heating control module. One plant is planned for Germany, the other plant for the Chinese branch. The complete welding technology was supplied by Harms & Wende QST. Each system includes two Genius-HWI406L air cooled inverters controlled through XPegasus PC based user interface, two medium frequency ...

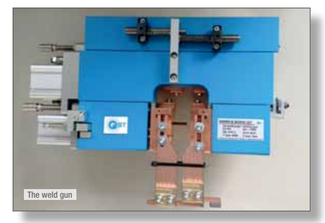
Continued on page 4...


View in the weld machine

Technology corner

Continued from page 3

... transformers type HWT2109, two SZ400 pneumatic welding guns, electrode holders and electrodes, as well as a PQS^{weld} quality monitoring system. Due to the integrated PQS^{weld} system, the Genius system was used as welding control in this application. The first plant was commissioned in Neubrandenburg near Berlin. Parameter setting was part of the scope of delivery of the HWH QST. These were subjects of the required quality requirements from the end customer in preliminary tests determined in our own laboratory in Chemnitz.
After the production of a small series, the values could be transferred to the plants during the commissioning phase. This parameterization provided good and repeatable results right from the start. Operation of XPegasus was evaluated by the employees of the end customer and accepted as very good. The PQS^{weld} system has already been known for several Quadrigo applications and did not cause any problems. Particulary noteworthy in this project is the excellent professional and collegial cooperation of the employees of the participating companies. Thank you very much. For the plant manufacturer, it was the first plant of this size with integrated welding technology. As the plant manufacturer in the field of inexperienced welding, he had to and could fully rely on the QST. Problems encountered during the start-up phase were solved in a customer-oriented manner. The second identical system is currently built in the Chinese branch of the end customer.
At the same time, the experience gained during the first commissioning in Neubrandenburg can be brought in immediately. Thus, the QST has proved to be a competent partner to the end customer as well as to the plant manufacturer. Therefore, now can be expected with other orders. For us, this first extensive project was also very instructive. Since we have always been confronted with special tasks in the field of small parts welding, the work in this project has confirmed that we have the right approach.


The weld gun

Together with competent partners, QST is able to solve complex manufacturing tasks in a customer-oriented and secure manner. The challenge in the area of micro-welding always lies in the actual welding task. The basis of all previous customer inquiries always referred to the specific welding task on components with the desire to recommend the required welding technology. Talk to us, even if you have challenges in the field of small parts welding. (The HWH-QST is a 100% subsidiary of Harms & Wende Hamburg specialized on micro-joining solutions. The colleagues also cover the east side of Germany, Poland, Czech and Slovakia Republic).

TECHNAX is connected to e-mobility

For its 30th anniversary, the French company TECHNAX developed a new concept especially dedicated to the e-mobility for car industry. Specialized in the conception and fabrication of welding machines, TECHNAX uses different technologies to join metal parts together, like resistance welding and brazing, induction brazing, resistance compacting and laser welding. Thanks to its close collaboration with H&W, TECHNAX can offer customized HMI on the basis of SINIUS MF for resistance welding solutions. Through its long expertise in the assembling of copper parts, TECHNAX is proud to announce an innovative solution on the market for wire harnesses producers which are involved in the booming e-mobility market. This concept enables the compacting and resistance brazing of a copper cable with sections up to 120 mm² on a copper terminal or pin. The big advantage of the TECHNAX solution is that a final part is achieved, through a so-called „combrazing®" process, in one single operation vs 3 or 4 traditionally.


Electric drive

Advantages for users are:

- Faster output rate and more reliable efficiency, because single parts are manipulated only once.
- Better repeatability and reliability of the process: depending on the quality of the compacting, the next step i.e. the welding can be directly impacted. With the TECHNAX solution (compacting + welding at the same time), this potential negative risk disappears. At the end, this makes globally the process much more reliable.
- Reduction of production costs:
  - Faster output rate.
  - One single welding equipment instead of minimum 2.
  - A reduction of the electrodes consumption by 50 % as only one single electrodes set is required for both compacting and welding operations.
  - A reduction of the current consumption (energy) by 50 % as there is only one machine instead of two.
  - A reduced space area needed for the equipment as there is only one machine instead of two.

Please come back to us for further information.

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