

# HWM WELD TIMES

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

# 10 YEARS

## 10 YEARS WeldTIMES

... a tradition keeps going.

When I started to review the content of this WeldTIMES I realized that it is already ten years back when I was sitting in Hamburg writing the first release. Exactly 20 years back as coincidence the first german release has been sent out to our customers and friends.

When putting all the content together you always question if a print media as this is still accepted or is it time to think over the concept with another media. The feedback from you gives us confidence that print media is still the way to go. Many want to hold a paper in the hand rather than getting a PDF. Of course, a PDF is easier to store and to retrieve later on, both media is mandatory to have.

What has changed over the years? It

seems to be not much, but indeed its is quite something. As an employee you wish to change the company faster, but on the other hand a slower but healthy growth is the better way. Ten years back we were about 90 people at the company, today we are about 120 heads counted. Our turn yearly turnover rose from ten to more than 24 million euros. The percentage of international customers rose also significantly, and the majority of systems is today exported to outside

Germany, either direct to foreign markets or indirect through integrators in Germany.

Our international sales and service network has been grown over the years giving you, our customers, the support you are asking for and deserve.



1<sup>st</sup> issue September 2008



5<sup>th</sup> issue September 2012

### Editorial

Ten years ago our boss Mr. Ralf Botheld has asked me to create the English newsletter WeldTIMES for our international customers. What a period has gone by, ten years! This WeldTIMES is created in my room in Beijing, China and is loaded with information for you. The intention is to get you ready for the EuroBLECH 2018 which will take place end of October in Hanover. We hope to see you there.

Four years ago we have kicked-off our first own subsidiary here in Beijing and have successfully gained smaller and larger orders. Our board of directors gave us green light for opening our branch office here in the capital of China. Our enthusiastic crew has made great work and it is an inspiration to support them.

I hope you will enjoy reading this newsletter as the previous issues. Have a continued wonderful summer time.



Yours,  
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## Joining of aluminum II

... continued from WeldTIMES 2017.

After the first part of this series of articles gave a brief overview of the process of aluminum welding and a look back at the beginnings as well as the negative influences the material to be processed is to be the focus of this issue. Even if the „aluminum welding“ is generally spoken, in practice we apply almost exclusively aluminum alloys, more precisely aluminum kneating alloys. The pure metal is added to various alloying elements

that influence or alter the properties of the material. Since the manufacture of aluminum alloys is generally controlled by forming processes (i. e. Rollers and Extrusions), the materials are summarized together in the group of kneating alloys. For the designation and differentiation of aluminum alloys, a labeling key is defined in DIN EN 573, which divides the materials according to the elements contained in the highest proportion.

**The standard defines the following rules for the designation:**

- The marking „En“ is followed by a space and then the letter „a“ For aluminum and „W“ for kneading products.
- After a hyphen, the four-digit number, which depends on the chemical composition, follows. The alloy element(s) with the highest share.

*Continued on page 2 ...*

# Joining of aluminum II

... continued from WeldTIMES 2017.

Continued from page 1

## Define/determine the first digit and define the alloy group:

- 1xxx (serie 1000): aluminum with at least 99.00%
- 2xxx (serie 2000): Copper
- 3xxx (serie 3000): Manganese
- 4XXX (Series 4000): Silicon
- 5xxx (Serie 5000): Magnesium
- 6XXX (Series 6000): Magnesium and silicon
- 7xxx (serie 7000): Zinc
- 8xxx (Serie 8000): Other elements
- 9xxx (Series 9000): Unused series

- The four-digit number can still be a character that identifies a national variant. The letters are awarded starting at „a“ when a second country, after the initial registration, re-registers the alloy with small deviations (the frames of which are defined in the standard).

When welding aluminum alloys – in the automotive industry – we will only be able to use the natural hard material of the series 5000, the curable material of the series 6000 and the high-strength alloys of the series 7000 confronted. The 5000 series tends to form for the formation of flow figures, so that the material is hardly used in outdoor areas. This disadvantage is compared with low costs, so that the material is used in structural

structures [1]. The most widely used material is en aw-6016. This alloy is soft in the delivery state and is cured during the production process of the body. During the Varnish drying, which takes place at temperatures of 180° C to 200° C, the alloy components (Mg<sub>2</sub>Si) are different, the metal lattice is tense and the strength of the material increases.

As in the first part of this essay series, the main challenges for the spot welding of aluminum can be applied to the material properties of the joints itself and to that of the electrodes. First and foremost, this

- The variable properties of the materials at the beginning of the welding process by storage and Transport (aluminum covers with an oxide layer).

DEUTSCHE NORM		Februar 2005
<b>DIN EN 573-1</b>		<b>DIN</b>
ICS 77.120.10; 77.150.10		Ersatz für DIN EN 573-1:1994-12
<b>Aluminium und Aluminiumlegierungen – Chemische Zusammensetzung und Form von Halbzeug – Teil 1: Numerisches Bezeichnungssystem; Deutsche Fassung EN 573-1:2004</b>		

Figure 2 DIN EN 6573-1

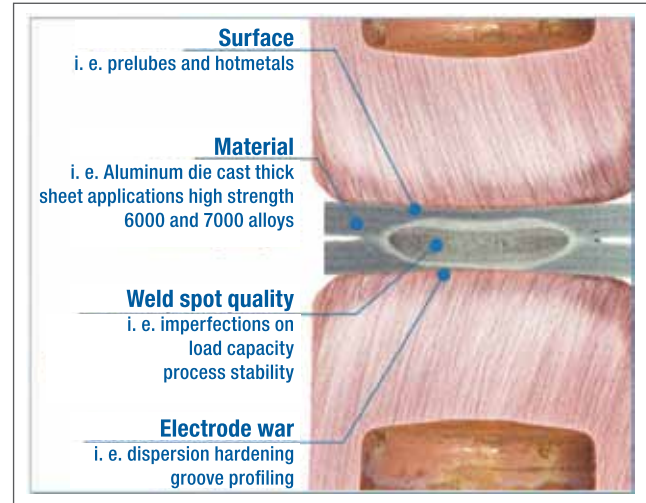


Figure 1

- The good affinity of aluminum to copper and the associated formation of alloying at the electrodes.
- And the sensitivity of the welding melt compared to imperfections to designate. In [2] these challenges have been summarized very clearly in a graphic, which should therefore be replayed at this point. In the next edition of the series of articles,

some selected technical possibilities which improve the spot welding of aluminum and thus increase the acceptance for the production use.

Literatur:

- [1] Verbesserung der Prozesssicherheit des Punktschweißklebens von Aluminiumwerkstoffen und Ermittlung von Verbindungskennwerten für Konstruktion und Simulation. GSI SLV Duisburg, Bericht zum Forschungsvorhaben AiF-Nr. 16.335 N, Duisburg, 2012.
- [2] Einfluss von Punktdurchmesser, Fehlstellen und Imperfektionen auf das Festigkeitsverhalten von Aluminiumpunktschweißverbindungen. Laboratorium für Werkstoff- und Fügetechnik (LWF), Universität Paderborn, Fraunhofer-Institut Produktionsanlagen und Konstruktion (IPK), Bericht zum Forschungsvorhaben AiF-Nr.17.78 9 N Paderborn/Berlin, 2016.

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## From the export markets



### People's Republic of China

As written in the Editorial on the first page we are present in the People's Republic of China with our own branch office. During 2017 through 2018 our Chinese colleagues successfully received orders for friction welding machines as well as orders in the field of resistance welding.

In summer and fall of this year 255 welding panels are in shipment for a major order as well as a number of orders from animal suppliers. HWH Beijing operates on the industrial markets, friction welding and supports on other markets if required. It's a flexible business. Close cooperation with our Hamburg office is the key to success and new staff members are coming

in at this time or are on training in Hamburg and join the Beijing crew the



next months in 2018. Our facility is currently extended in space, we need

more room to accommodate staff members as well as organizing a larger warehouse to be ready to supply customers in China effectively.

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# From the export markets

Continued from page 2



## Italy

Our Italian partner Corotrat has a great job with GeniusHWI inverters. The delivery is made to a mechanical engineer in northern Italy. The production line is then installed at the end in the Czech Republic and welds stainless steel components of various kinds for a premium manufacturer in the area „white goods“. This is the largest single order for our partner so far. We have been working together successfully for years.

The Italian market in the business segments:

- Industrial Solutions
- Automotive

- Micro Welding
- Friction Welding

The company's head office is located in Roletto nearby Turin approx. 60 Minutes to the city centre. In addition to sales services, Corotrat of course also technical support before and after a sale. Cabinets can also be stored locally in small series be manufactured.



## Slovakian Republic / Czech Republic

As already reported in the previous edition, we were able to find, successfully bind and inspire a new sales and service partner for the Czech and Slovak Republic with the

company Fox Automation from Trnava (Slovakia). Fox Automation is originally active in the field of robotics and automation, mainly in the automotive sector. In the second week of February, two employees were employed in our product series GENIUS, FILIUS, SINIUS, but also for the control systems of the small-part welding Primus and Ispot Trained in sales. Due to the training and test facilities available at HWH QST, content could not only be conveyed theoretically. The possibility to control the welding. And to show and demonstrate software products in practice. The employees of Fox were thus able to convey numerous contents. With this intense trainings

we strengthen the presence in both countries. Almost in parallel, the technical training of employees in Hamburg. This makes Fox Automation well-equipped for technical services and sales. Together, we will continue to develop the technical expertise and maintain this with our other sales partners as well. In order to be well positioned in the field of services customer, Fox Automation has taken part in the service meeting with four employees. This enables us to provide our automotive customers with better service and training in local language. We are looking forward to a further successful cooperation in the Czech Republic and Slovakia.



# Industry 4.0 and digitalisation

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... the Megatrend industry 4.0 and the implementation at HWH.

Even today, the issue of Industry 4.0 has provoked different reactions. The reactions range from the „storm in the water glass“ to „Revolution in the production process“. The truth is, as so often, somewhere between. The fact is that the industry 4.0 and the adaptive production (3d printing) already today the processes product development, sales, production, service and quality management. For industry 4.0, the exchange of

data between the development and construction, through production systems to the master computers, are of elementary importance. The implementation of such industry 4.0 applications has been underway for some time. Some globally positioned companies have already started to produce spare parts no more centrally and then to shipping, but with the help of industry 4.0, the spare parts are produced on site

on demand. Suppliers of technical products must meet the requirements of industry 4.0. If they do not, then these products will soon only be sold in niche markets. Harms & Wende implements the requirements of industry 4.0 in its products. The XPegasus enables the networking and thus the data exchange of the GENIUS welding controllers with control computers. The GENIUS controls can be connected to robots and automation controllers (PLC) via field buses. The parameter exchange between the PLC and the GENIUS is possible via the standardized interface OPC. Then the PLC has the possibility to make changes in the welding process directly from the machine sequence (PLC program). The operator's intervention over the XPegasus-user interface is not necessary in this case. Only more extensive configuration or parameter changes are made via the XPegasus. This means that the resistance welding process takes place via the ma-

chine visualisation. This represents significantly simplifies production and thus increases efficiency. Our SINIUS resistance welding system is integrated into the machine's automation system. This means that the operation of the SINIUS is done completely via the machine visualisation. Simply said the integration into the PLC is done just like a drive inverter via a fieldbus. SINIUS is fully integrated into the remote maintenance system of the machine. Due to standard networking of the machine with control computers, the SINIUS control system is connected automatically. New demands are constantly coming from the world of industry 4.0 to Harms & Wende. We evaluate these requirements technically and economically before they are realized. Nothing is more dangerous than resources for individual ideas that no one needs to waste.

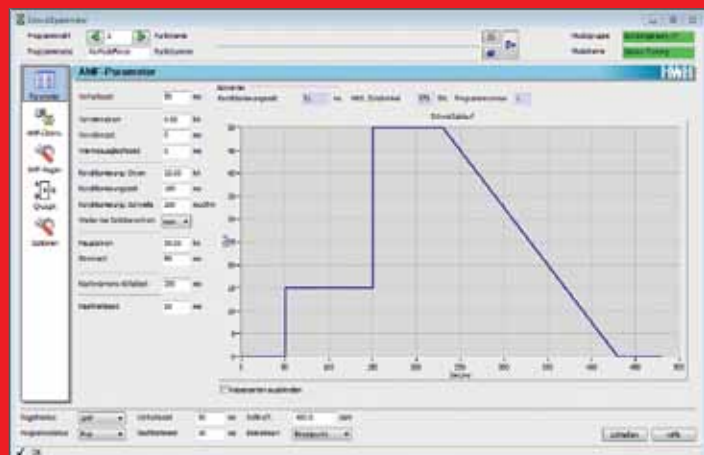


Figure 3 User interface XPegasus for networked systems



# First global service meeting in Hamburg

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... for your support & success.



Active workshop participation



Service-Meeting participants

The first service meeting for our worldwide partners took place in Hamburg at the end of April. In recent years we have held meetings for our customer advisors and sales partner, this time for all service technicians

of our sales and service partner. Due to the many interesting topics, the meeting was based on a all week and we were happy about almost 40 participants. Our partners came to Hamburg from Canada, Mexico,

China, Korea, India and many other countries. During the meeting we have the participants divided into groups to make the training more intensive. Alone 10 coaches of HWH Hamburg, HWH-QST and Procon Pas took care of the participants. The Meeting not only included HWH Hamburg, the entire Harms & Wende Group has

actively involved in the work. But it should not just be a lesson but an active training and an information platform. All participants were asked to bring their daily tasks and to work together with the others to solve them and to give suggestions. Since only the practice brings the real tasks, the meeting was also a lesson for our own service colleagues. The feedback of the participants was very positive, and we are therefore planning to have this meeting held every two years – for the benefit of you – our customers.

## HSH Nordbank Run Hamburg

... raising money for kids who need.

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### HSH NORDBANK RUN 2018

The HSH NordBank Run is a tradition in Hamburg which takes place every June in the new Harbour city in downtown Hamburg. This is where the cruising ships through anchor, release on-board guests and welcome new

travellers. The run is intended to raise money for kids who really need it who are in difficult moments in their young lives. All companies in Hamburg are invited to join this summer event. In spring each HWH employee is invited to join the run also with family members to make the 4 km in downtown Hamburg. Our crew has grown over the years and we have all ages from old to young and even

a dog is joining our team and has fun. Hence it's not so simple to calculate the number of runners in our team just by counting the legs and divide by two, we have also members on four legs. We are proud to be part of this run and to give to others who deserve it is also a moment to think about how good we all have it every



HWH running team

day and health is a precious item we have and shall preserve.

## Gothenburg ... a small big city in Sweden.

Gothenburg (Sweden) is located on the west coast of Sweden with mild climate influenced by the gulf stream coming all the way from the Gulf of Mexico. The city is in summer loaded with outdoor events and it is fun to see the people enjoying sun and all the green areas downtown. Making a tour with the flat tour boat paddan geeting a nice "hair cut" when passing the ultimate low bridge called "the hair dresser". In the evening enjoy time in one of the restaurants or pubs all over town. Or you book tickets for the music hall and opera. Both houses play on high level known pieces as well as local Swedish ones.

If you are a car enthusiast the Volvo museum near the Volvo main factory in Torslanda on the North side of town is your destination. Start here your boat tour through the Göta Canal through Sweden and pass

the country to the East coast by boat without using a car. How to get there? Fly into Landvetter Airport about 20 km outside or come by boat, there are a number of every day links to the continent.

### Your Harms & Wende partner

All articles by Jörg Eggers if not indicated otherwise. Email: joerg.eggerts@harms-wende.de

### Events & fairs

- Expo WELDING 2018, booth 7 Sosnowiec, Poland, October 16<sup>th</sup> to 18<sup>th</sup> 2018
- EuroBLECH, Hanover, October 23<sup>th</sup> to 26<sup>th</sup> 2018
- AMTS, Shanghai, Juli 3<sup>rd</sup> to 6<sup>th</sup> 2019

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