

Current report

Inventor of the robot welding gun

As the leading manufacturer in resistance welding technology NIMAK is the only one that also provides gluing and dosing technology

Wissen, June 2017 – "To have partners with whom you can talk at eye level is absolutely essential for an institution like ours" emphasizes Prof. Dr. eng. Steffen Keitel, CEO of the Schweißtechnischen Lehr- und Versuchsanstalt Halle (Center for Welding-Related Instruction and Experimentation). "With NIMAK we have exactly such a company on our side that does not place importance on just sucking up information but rather on actively shaping the scientific-technical development work in open and constructive communication." That is something that should not be taken for granted and not everyone can do that. That is exactly why the SLV Halle has decided to work together with the company from the Westerwald District not only in all fields of research, industrial services and training, but has also decided to order a spot-welding machine with the unprecedented, unique "magneticDRIVE" technology.

This is one of the innovation highlights of the company headquartered in Wissen which meanwhile has become the largest German manufacturer of robot welding guns as well as one of the world's leading suppliers in the sector of resistance welding technology and on top of that has manual welding guns, automation solutions and special systems along with gluing and dosing technology in its product portfolio. With the "magneticDRIVE" NIMAK has, along with electrical motor and servo-pneumatic drives, developed a third highly efficient drive type in which for the first time with the use of electromagnets the power can





also be varied during pressure welding and the other parameters can be supplemented with power and time. That makes the joining process softer and gentler on the materials, which permits longer maintenance intervals and a smaller dimensioning of the plant. Moreover, this technology also facilitates reliable connections between steels and aluminum that are difficult to weld.

"That opens completely new options for us in welding technology" explains Keitel. Even though SLV is still testing the system it already shows great potential. Moreover he places great trust in the NIMAK company and gives top marks to the company and the collaboration. "Alone the fact that we have made a large investment there and use the technology in our laboratory is recommendation enough." Along with the technological performance however also decisive is that the company's mindset adds up very well together with its in-house approaches.

Great competence in resistance welding technology

The estimate of the SLV CEO obviously matches that of the market too. NIMAK is considered a technology leader by customers and users. With more than 50 years of experience, the medium-sized company is already active in resistance welding techniques and has decisively influenced them. "For instance in 1977 we put a robot welding gun on the market, which makes us its inventor" reports Paul Nickel, Managing Partner at NIMAK. "That fact and our market position are the reasons we can confidently state that we have helped this technology gain acceptance around the world."

Indeed, the success of his company is decisively linked to the triumph of the robot in the automobile industry, which is one of its most important customers. NIMAK is worldwide the sole provider that has been released by all premium automobile industry manufacturers to





meet customer-specific standards for welding guns. The company provides C- and X-guns which are used depending on the application and accessibility. Along with the robot welding guns produced according to the specified standards, with "multiframeGUN" we have also developed an in-house product for all customers without dedicated specifications. It is based on a modular system in which the baseplate can be combined with the gun drive, transformer, arm clamping, motion link and guide. "Here we have accomplished a super-slim construction with maximum flexibility through six interfaces for the robot connection and a reduced gun weight" explains Nickel. Additional benefits are its cost-effective production and high delivery capability thanks to its greatly reduced multiplicity of parts along with simple and flawless installation.

Along with that, NIMAK also supplies manual welding guns that still account for a share of 15 to 20 percent. They are interesting for all sporadic spot welding jobs, series production or flexible use for rework and even for markets where manual manufacture is of considerable importance, for instance the Russian, Indonesian and Thai automotive industry. Overall, the company will be manufacturing about 8,000 robot and manual guns just in 2017. Along with the important automotive sector, the spot-welding specialists are also supplying consumer goods and household appliance manufacturers, the aerospace industry and the entire metalworking sector, all of which are increasing in importance. Meanwhile in robot welding guns NIMAK has gained nearly 100 percent name recognition.

The importance of automation solutions is increasing

And in the other important mainstay of automation, about half of the relevant target group is familiar with the brand. The line ranges from round-table systems and stationary welding machines with special



welding tools up to construction and turnkey erection of complete robot cells with a maximum degree of automation. Here also, the automotive sector is an important customer area. For instance, for many years NIMAK has been delivering to the Gestamp Griwe supply company primarily with completely automated robot systems. At the moment, the implementation of two projects with an order volume of more than one million euros is currently underway.

On the one hand this concerns a linear-transfer plant for welding boards that are intended to strengthen the crash behavior in the B-pillar in Opel and Ford models, and on the other a plant for projection welding when attaching diverse sub-assembly groups that are being integrated in the B-pillar of the 3-series BMW's. "Our partner NIMAK sets itself apart with a very precise and distinct technical orientation that does a great job of meeting specific customer requirements" emphasizes Gerald Zwingmann, co-responsible at Gestamp Griwe for the welding process planning. "The collaboration is great both in human and technical terms". In this respect the company can be readily recommended.

That is also confirmed by Gerhard Junior, CEO at MJ-Gerüst, one of the largest German manufacturers of high quality facade and modular scaffolding systems: "The cooperation with NIMAK is decidedly positive. We also thank its expertise and performance during the pending technology change." In the future, the steel floors will be manufactured by MJ-Gerüst with an automated plant line. The reason for the investment in the new production technology is the rapidly increasing demand for scaffolds "Made in Plettenberg". With the development of additional production space at its home base, MJ-Gerüst can start producing the series-connected combination of punching, profiling and welding technology without impairing running operations.





During this project, NIMAK is working hand in hand together with the company Dreistern which is supplying a roll forming system. It forms the boards before the subsequent spot welding in the NIMAK plant with seven robots. However, here the work is no longer performed with electrical arc but rather with resistance welding. "The increase in efficiency is impressive" states Junior. We save time, manage with only one worker on this plant and achieve clear cost savings that we can pass on to our customers." The onsite production also presents clear advantages in the logistics handling, which can now be further expanded through restructuring at the main MJ-Gerüst factory.

Timely reaction to market changes

Such positive customer feedback is no rarity for NIMAK. "For us, that is the best confirmation that we are on the right track" according to the well-pleased CEO Nickel. The continuous growth proves his point. Meanwhile, around the world 430 employees, of those 260 in Germany, generate an annual turnover of about 90 million euros. "Decisive for that is the consequent development of innovative processes, the development of new markets and the optimization of internal production processes and workflows" observes Nickel. A considerable amount is spent on that. With more than 44 percent the investment rate is well above average. The family-managed company has plowed-back the profits already for many years. The share of exports of more than 50 percent demonstrates the international orientation of NIMAK. Along with the European countries, in particular the markets in China, Mexico, the USA, Russia and Brazil are particularly significant. The German market is nevertheless more than important. After all, the company has many customers here that they follow to their foreign sites.





Having said that, the market for spot welding and robot welding guns will change. "The number of welding points, today still about 3,000 to 5,000, will continue to decrease even though resistance welding is still the fastest and most cost effective method" explains Nickels's CEO colleague

Dr. Niels Hammer. "But the increasing trend to lightweight construction and an associated multi-material mix requires other joining technologies." Gluing technology will prove to have the greatest growth rates in modern body construction in the next ten years. But NIMAK prepared itself early on for this development.

That is why with gluing and dosing technology the company has setup another important business unit which it completely developed in-house already starting some years ago. The "a.tron" application technology for adhesives, sealants and insulating materials includes the complete required system with perfectly matched components, from the double drum pump and control system through the dosing head. "We just recently put the new generation of ,a.tron' on the market which transfers a part of the controller into the dosing head, resulting in the elimination of the entire control cabinet" explains Hammer. This is of significant importance to many production sectors.

Competitive-edge thanks to two kinds of joining methods

With the range of resistance welding and gluing technology, NIMAK has created a globally unique selling proposition for itself. For both joining technologies the company from the Westerwald district offers complex solutions and, if desired, integrated automation solutions. "So seen, we offer our customers everything from one single source" emphasizes Hammer. Furthermore, with this range it provides the customers with a high degree of investment security since they can equip themselves for



all joining jobs and get ready for production methods that will change in the future.

| Figures:

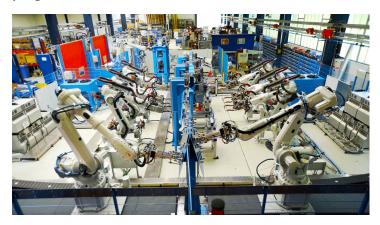


Fig. 1: NIMAK designs and develops customized automated production plants based on its own components such as robot welding guns, dosing plants and resistance welding machines.

Photo: NIMAK GmbH





Fig. 2: With the gluing technology business unit, NIMAK has prepared itself in good time for the increasing importance of these applications. The "a.tron" application technology for adhesives, sealants and insulating materials covers the entire system with all components, which are perfectly matched to each other.

Photo: NIMAK GmbH



Fig. 3: NIMAK put the first robot gun on the market in 1977. The company has been the largest German manufacturer in this sector for a long time and has established itself as an innovation leader.

Photo: NIMAK GmbH



| About NIMAK

On a global scale, NIMAK is the only supplier of resistance welding and simultaneously adhesive technology. The company headquartered in Wissen is considered an innovation leader by customers and users. As the inventor of robot welding guns, NIMAK has helped this technology gain acceptance and in this sector is now the largest German and international leading manufacturer. The joining specialist from the Westerwald district is the sole premium supplier of the automobile industry that has the approval to meet customer-specific standards for welding guns. Furthermore, manual welding guns, welding machines and gluing and dosing plants are included in the product portfolio. The company also develops individualized automation solutions for all applications. With more than 50 years of experience in the "perfect connection", NIMAK is active around the world. 430 employees support customers from highly diversified sectors - in particular automotive, consumer goods, the aerospace industry and metal working - with their challenges in production and accompany them in new markets and in unchartered technological territory.

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