

# MARKER

The magazine for the sheet metal working industry

Summer 2017



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At Solutions, AMADA presented its stand-out machines in live operation.

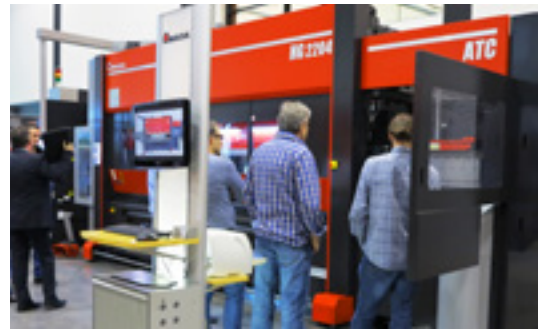
**Digital solutions and current stand-out machines live and in practical use – at Solutions, AMADA once again showed off its technological leadership to visitors and showcased the company's innovative strength.**

From standalone solutions through to fully-automated systems with robot automation – over an area of 2,000 square meters at Solutions in March 2017, AMADA presented live applications to show just how efficient sheet metal working can be in the world of digital networking. The highlights of the in-house exhibitions that were held in March in Haan and Landshut included the LCG AJ fiber laser-cutting machine with 6 kW of power, as well as the press brakes with automatic tool changer: HG 2204 ATC and HG 1003 ARs. A practical test workshop made it possible for visitors to discover just how fast their own in-house bending processes using their existing machines actually are and how these can be further improved. The advantages and potentials of digital networking

were presented by means of a practical example running on a number of different machine solutions (for more information on the practical test, see page 3). In addition, Solutions provided a forum for discussions with AMADA's specialists, allowing visitors to discover solutions, swap experiences and find out about new ways forward.

### Everything on display

The aim of the generously sized showrooms that accommodate Solutions in Haan and Landshut is to present AMADA's entire machine portfolio and win over visitors with live production solutions – and the results are impressive! Here, the focus lies not only on the presentation of the various technologies but, more importantly, on a cross-solution offering consisting of analysis and consulting services. Visitors are informed in-depth about the latest developments in the metalworking industry. The showrooms are perfectly configured to meet the requirements of live applications running on AMADA products. Presentation hubs subdivided by technological field



form the platform on which AMADA's application engineers present practical manufacturing solutions on demonstration machines. For information and dates, go to: [www.amada.de](http://www.amada.de) •

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Automatic setup with the HG ATC

# More efficient bending

**The automatic tool changer (ATC) cuts the setup process at AMADA HG press brakes to just a few minutes. Combined with the fully networked production process this brings maximum manufacturing efficiency from a single supplier.**

With the HG 1003 ATC, AMADA is able to supply a manually operated press brake that nevertheless permits a high level of automation thanks to the ATC tool changer, which was developed exclusively by AMADA. This is because the ATC handles the entire setup process, which takes an average of approximately 40 minutes on conventional systems. "At an HG 1003 ATC, however, this type of setup operation can be performed in 20 seconds to three minutes," explains Tankred Kandra, Product Manager for Bending Technology at AMADA GmbH. "Or in other words: At an HG 1003 ATC, it is possible to install 32 tools in just 36 seconds. This makes it perfect for short runs with frequently changing parts and it can easily replace two conventional machines that have to be set up manually." Alongside the HG 1003 ATC with 100 tonnes of press force and three-meter beam width, AMADA also supplies the HG 2204 ATC with 220 tonnes of press force, a beam

## How fast are you?

Take our practical test and calculate your manufacturing time for a five-part assembly. Go to the AMADA Marker web platform [amadamarker.com](http://amadamarker.com) and complete the online questionnaire in the news article "More efficient bending".

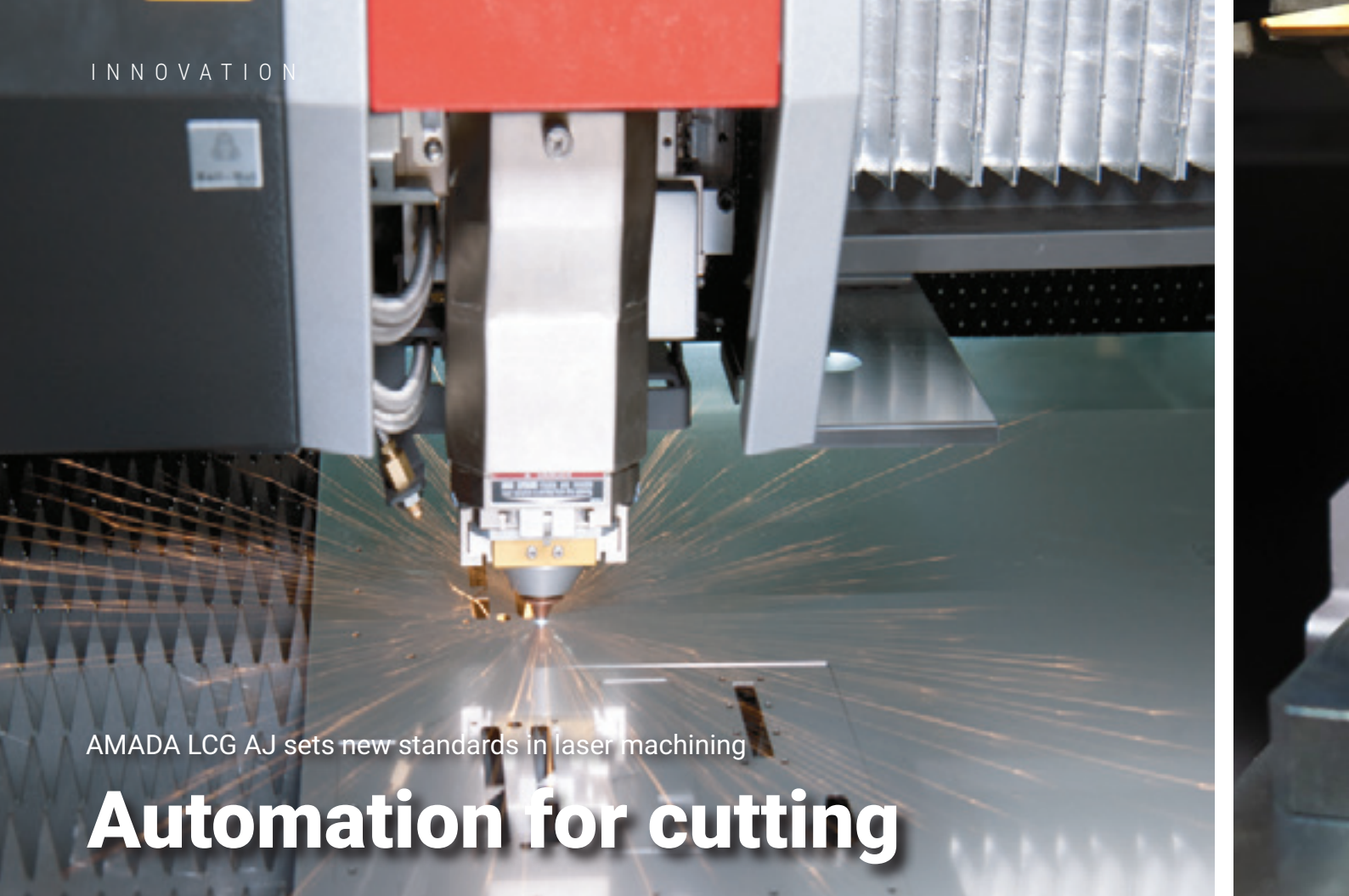
We will analyze the data and discuss with you how you can manufacture even more efficiently and strike the perfect balance between shorter runs, high production complexity and maximum flexibility!

width of four meters and a larger ATC. In practice, the customer simply imports the 2D/3D data of the part that is to be manufactured into the AMADA Production Designer which then defines the properties of the part. The part is then "flattened" and the blank is generated and trans-

ferred to AMADA's software (VPSS 3i BEND). This then works fully automatically to create a complete bending program, including the tool selection and bending sequence, generally in between just 20 to 90 seconds. During tool setup, all the tools then travel to the required position and the operator presses the start button to start production. And if a new order arrives, the next bending program is simply loaded into the ATC. "Once the data has been imported, the Production Designer then works together with the bending software to perform a feasibility analysis. This allows the customer to see straight away whether the job can be performed as is or whether other welding, stamping or laser cutting operations are required." adds Peter John Hain, Software Application Engineer at AMADA. "And these, too, can be implemented perfectly using the universally applicable Production Designer from the cross-technology VPSS 3i software suite." ●



Thanks to the ATC, the setup process at the HG ATC takes practically a very limited time.



AMADA LCG AJ sets new standards in laser machining

# Automation for cutting

**Whenever fast, top-quality laser machining is required, the AMADA LCG AJ is the perfect solution. Because with a laser output that can be chosen between 2 and 9 kW, it offers optimum cutting quality for a vast range of material types and thicknesses. The already outstanding efficiency of the system can be significantly boosted by numerous automation options and new blank solution tools.**

**2**, 4, 6 and 9 kW – those are the laser output classes that AMADA offers in its LCG AJ series of lasers for perfect laser-based cutting. The laser power that is actually used in practice will depend on the actual production requirements. “In particular in the case of mid-range material thicknesses of ten to twelve millimeters, the greater laser power ensures higher output,” explains Axel Willuhn, Product Manager for Punching and Laser Technology at AMADA GmbH. At the same time, AMADA guarantees maximum process reliability even for the higher laser output classes with their considerably greater range of possible applications. This is ensured, for example, by the integrated, sensor-based monitoring of cutting operations, the automatic nozzle

changer or the nozzle cleaning unit. Every system adapts to the cutting conditions and can react specifically to every different task or challenge.

### Modular automation toolbox

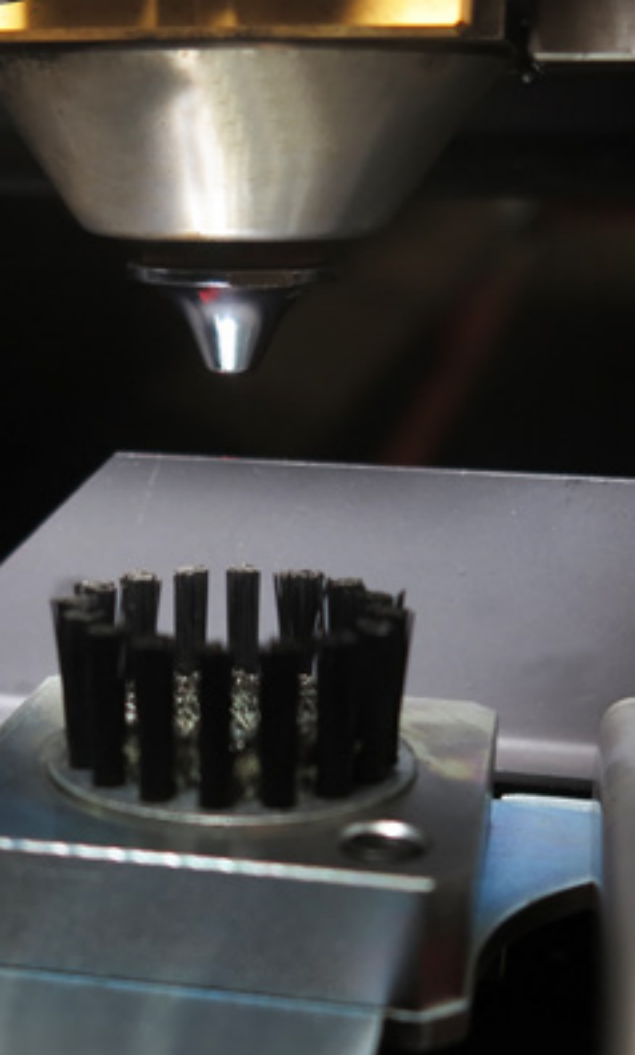
Independently of the laser power, the perfect performance of the LCG AJ series of lasers can be further increased by the available modular automation options. The spectrum ranges from simple loading and unloading of parts with the MP FLEXIT version, through the single- or double-tower systems from the AS LUL and ASF EU series and on to parts sorting with the TKL system. “These options allow users to span production cycles of several hours, or even days, and significant-



The Blank Solution Tools also provide a function for monitoring the current machine and order status.



Automation modules such as the ASF EU tower system (below) greatly improve the performance of the LCG AJ. Elements such as the nozzle cleaning unit (left) ensure totally reliable processes.



ly reduce their manpower costs. The person responsible no longer has to stand continuously at the machine but is instead free to perform other activities as and when required," explains Axel Willuhn. Individual parts or even whole series of the same material type and thickness can be stacked as required and can consequently be manufactured fully automatically. AMADA's automation concept has been designed in such a way that even multi-machine operation at several different systems is possible without difficulty.

### 70 percent time savings

Whether as a standalone system, partially automated or fully automated: laser cutting with the AMADA LCG AJ is always outstandingly simple and efficient. This is thanks to the AMADA Blank Solution Pack, the fully-featured software solution for the external programming of all AMADA punching, laser and punch-laser combination machines. The data for the part that is to be manufactured is imported

via the Production Designer and the ABE Planner generates the associated production data including a production schedule for the part. The integrated VPSS 3i programming system then performs the nesting, sorting, technology assignment and NC code generation tasks. All the processing parameters, as well as the part and program data, are managed by the Parameter Explorer (PX) and the Data Explorer (DX).

In this way, production is performed in a single, end-to-end process, permitting time savings of up to 70 percent compared to conventional manufacturing sequences.

### Four new Blank Solution Tools

In the future, AMADA intends to further extend its "V-Factory" concept to permit digital, fully networked production within the context of Industry 4.0. Consequently, at this year's CeBIT, the company presented four new, innovative, high-performance tools for the AMADA Blank Solution Pack for the first time. These included the Order & Production Manager that records all incoming orders and works together directly with the new Vlot Manager.

This automatically calculates the required machine capacities and reserves and schedules, these together with the corresponding programs in order to ensure optimum utilization of the available systems. The new Vlot Navi module

then provides the machine operator with a clear overview of the current day's tasks and displays a detailed list of the parts to be manufactured. Last but not least, with New Kaizen, AMADA is supplying a tool that provides an overview of the in-house machine pool. It shows which machines are currently running, which are in stand-by mode and whether there are any malfunctions or alarms. Thanks to the real-time data, preventive maintenance operations are possible at all times.

### Successful, fully networked production

All the data from the new tools are stored in real time in the central VSDD database that can be accessed at any time and from any workstation. This means that users always have a complete view of all tasks and processes, can monitor these as required and intervene flexibly if the need arises. "The new tools permit the optimum use of all the systems, while the end-to-end digitization of the processes allows our customers to plan even better than before and to manufacture and deliver on a just-in-time basis," explains Peter John Hain, Software Application Engineer at AMADA. "These are new, helpful, modern tools that make their users outstandingly flexible and competitive and open up the potentials of digitization for them in a highly effective way – for our joint, long-lasting success." ●



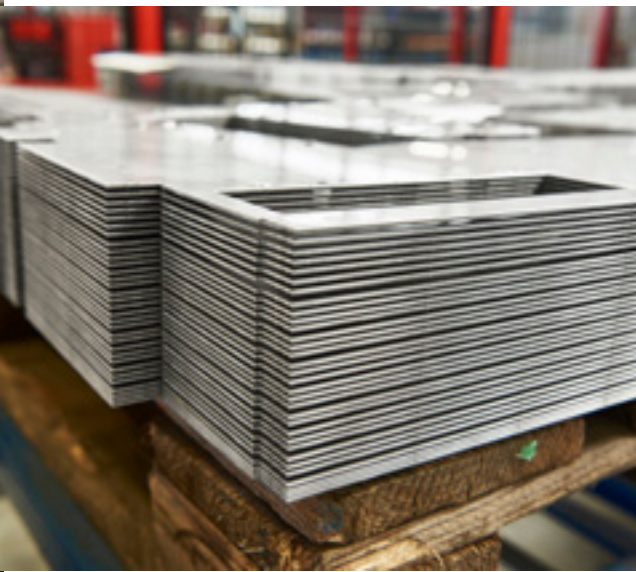


Wölfle GmbH, Ochsenhausen

# Automatic success



Thomas Wölfle, Managing Director of Wölfle GmbH (bottom right) and Lothar Liegmann, AMADA Sales Executive (below).



Alongside the new sheet metal working capabilities, the production department at Wölfle GmbH still also uses semi-automatic systems such as the AMADA HD 1003 ATC (above).

**Thanks to a new AMADA HG 1003 ARs, sheet metal working at Wölfle GmbH in Ochsenhausen, Germany is now fully automatic, with the machines running around the clock and with no additional personnel. In combination with the AMADA HD 1003 ATC, the robot-assisted bending cell is part of the new corporate strategy that is based on increased growth and ongoing automation in its metal forming activities in order to ensure the company's long-term competitiveness.**

**W**hen the factory siren sounds just after midday, peace and quiet descend in the production hall at Wölfle GmbH in Ochsenhausen. It is only further behind, in the sheet metal working department, that operation continues. Here, a robot arm swiftly grasps large sheets from the material stack, transports them to the press brake and then uses this to perform many different forming operations. The gripper then takes the finished part and positions it on the conveyor belt for further processing. This process is one of the tasks of the AMADA HG 1003 ARs, which has been in operation here since February 2016 and is responsible

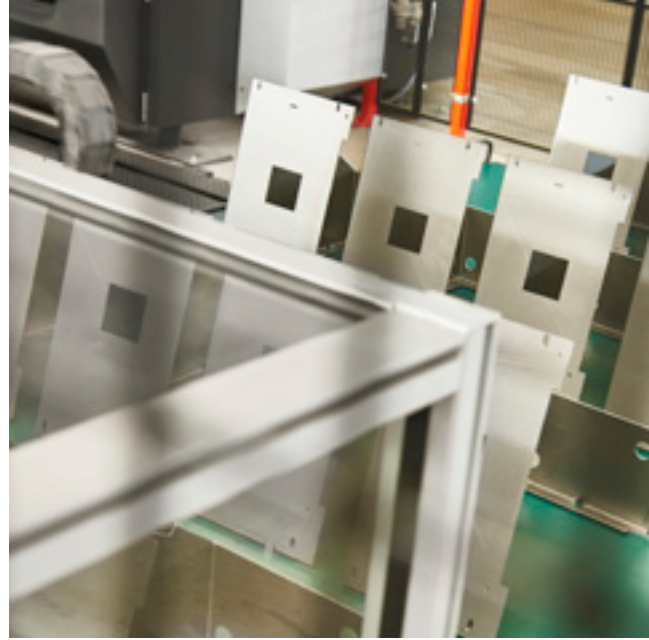
for the fully automatic production of housing components for the driver's cabs of construction vehicles, cranes and agricultural machinery. The portfolio of this family-owned company, which was founded in 1972, also includes parts for the electronic and air-conditioning systems installed in these cabs. The average batch size for these components is approximately 50 parts per order. In total, Wölfle GmbH manufactures some 3,900 metal assemblies that have to be produced here in two or three shifts per day at top quality, with absolute precision and with varying levels of vertical integration.

### Independent production around the clock

"With the new HG 1003 ARs, we have made a quantum leap in our sheet metal working," explains Thomas Wölfle, a qualified engineer and the company's Managing Director. "It is an independent, fully automatic system that runs unstaffed practically around the clock. It minimizes unit labor costs and simply makes our production more efficient." The employees present on site operate the new machine during their shifts without the need for any other workers. Thanks to their successfully concluded training in the programming of the system, they are



The robot arm is at the heart of the new AMADA HG 1003 ARs which runs around the clock without the need for additional staff.



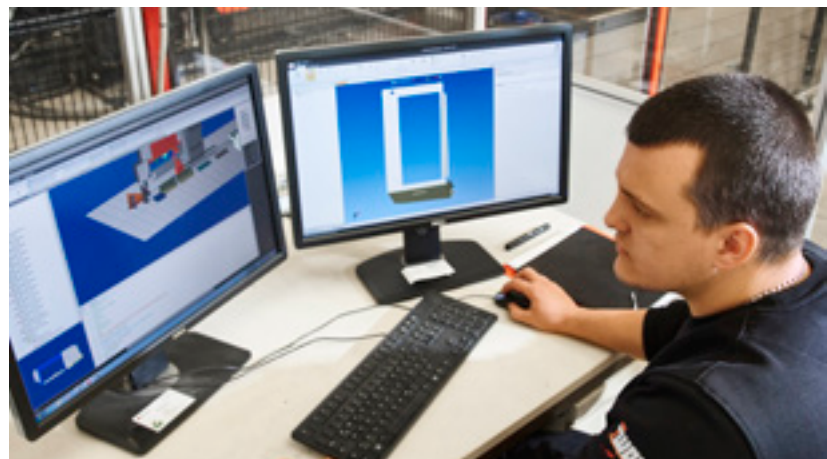
tem always functions at an identical level of precision without the day-to-day fluctuations that occur, in particular, when workers have to perform complex bending operations. Overall, therefore, the new robot-assisted bending cell also represents a considerable increase in capacity for Wölfle GmbH and it has been welcomed throughout the company as a valuable aid to work. "Another positive effect is that we can now manufacture rarely needed special parts in top quality, at any time and extremely quickly without start-up difficulties or waste," says Wölfle. "There are no downtimes at the HG 1003 ARs because, thanks to the ARs system and automatic gripper and tool changer, it is possible to manufacture two completely different parts independently of one another," adds Lothar Liegmann, Sales Executive at AMADA. "Another advantage lies in the various unloading station options in the form of a pallet solution or conveyor belt.

► able to program and equip the HG 1003 ARs themselves – in a period of only twenty to thirty minutes. This is due to the fact that the entire system has been designed to be particularly simple and user-friendly. "A key consideration when purchasing the system was ease of programming, which had to be proportionate to our average run size of approximately 50 parts. And in actual operation, we have confirmed that programming is indeed absolutely straightforward and intuitive without any need to enter complicated codes and coordinates," says Wölfle whose robotics studies have made him an expert in the programming of components of this type. As a result, during practical operation, all that is necessary is to enter the required components at the HG 1003 ARs' programming console. Verification is then performed at the machine where the robot slowly travels to every critical point and waits for confirmation or any correction that may be necessary. When everything is right, the operators simply pushes the start button

to start the bending process. In this way, Wölfle GmbH is able to manufacture simple parts just as easily as geometrically complex components with up to twenty bends.

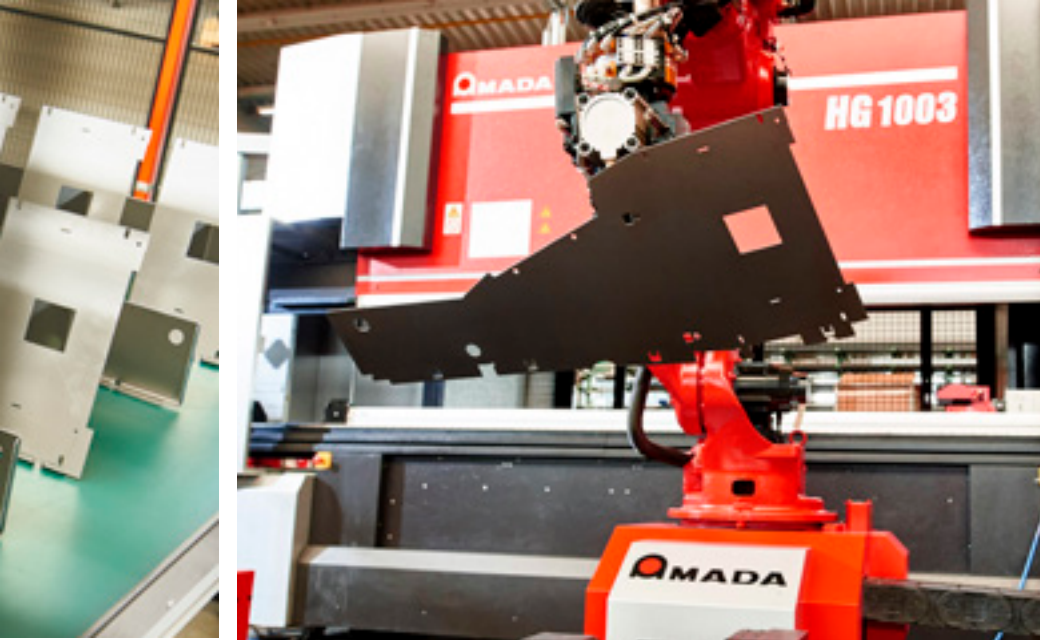
### Fully automatic production and unloading

In addition to the minimized unit labor costs and the fast, simple programming, the HG 1003 ARs also ensures improved production and part quality. This is because the sys-



Programming of the AMADA HG 1003 ARs is particularly fast and easy.





All bending and pressing operations are performed fully automatically on the AMADA HG 1003 ARs - from taking-up the dies through to unloading on the independently traveling conveyor belt.



in the machine as shown on the screen. "The result is that we benefit from guaranteed outstanding continuity, process reliability and uniform high quality that is vital for our success," says Wölfle. "What is more, in this system, all the tools are stored safely and securely in the ATC and the risk of damage, for example when they are removed or installed, is completely eliminated," adds Liegmann. "Last but not least, the traveling foot pedal that automatically moves with the operator makes the machine even easier and more comfortable to use - quite apart from the fact that with the ATC, it is no longer necessary to load the heavy tools by hand."

And if you choose a belt, then it, too, automatically moves at the same speed as the loading system, with the result that the entire process can genuinely run completely unstaffed." Exactly this type of 5,1-meter conveyor belt is also installed at Wölfle GmbH. In the future, it will be complemented by another belt in order to increase capacity specifically for difficult-to-stack parts.

### A new working strategy started with the HD 1003 ATC

For Wölfle GmbH, the HG 1003 ARs is the logical continuation of its sheet metal working strategy in partnership with AMADA, which started in December 2013 with an HD 1003 ATC. "At that time, we had to decide whether to outsource our entire sheet metal working opera-

tions or to transform them into a high-performance, forward-looking source of activity within the company," explains Wölfle. "After examining all the available market and machine options, we decided to work with AMADA." At the time, the vital criterion influencing the choice of the HD 1003 ATC was the greatly reduced setup times. Ultimately, in any given shift, it was necessary to retool seven or eight times, with the setup time alone taking an average of approximately eight minutes for each process. With the HD 1003 ATC, setup times were reduced to approximately 60 seconds per order. One of the main reasons for this is the Automatic Tool Changer (ATC), which provides the upper and lower tools fully automatically immediately after reading the barcode. The worker then simply has to process the part

### Working together for success

Taken together, Wölfle GmbH's investments in the first HD 1003 ATC and the new HG 1003 ARs have more than paid for themselves. "Our strategy of keeping our sheet metal working operations in-house and relying on continued growth coupled with ongoing automation has been extremely successful," is how Mr. Wölfle sums things up. "We have been able to become vastly more efficient and ensure even greater quality, availability and reliability in the long term. These factors have made us more competitive and ensure our success, which we want to build on further in the future in the company of our strong, reliable partner AMADA." ●

Robotic workgroup, Haan High School

## In the fast lane

**To familiarize the up-and-coming generation with the sheet metal working specialty, AMADA is currently supporting the Robotic workgroup at Haan High School and in this way encouraging the technicians and engineers of the future.**

"In our workgroup, we design, build and program small robots that play against other teams in national robot football competitions. We develop the board layouts for the microprocessors, plan the corresponding electronic circuit diagrams, assemble the individual parts, and program them. In a test phase before the competitions, we check whether everything is working as it should," explains teacher Roland Stiebel, head of the Robotic workgroup at Haan High School. Some 15 years

ago, he formed a student workgroup to build small robots and these have been constantly evolving ever since. Only recently, this group of 11 to 19-year-olds won the Western German Robocup Soccer championship, a football tournament for robots, for the fourth time and thus qualified for the national championship. These youthful engineers are supported by AMADA GmbH and other sponsors. Stiebel: "During his period of work experience with AMADA a few years ago, one student punched aluminum parts for our workgroup for the first time. Both parties were so impressed with this work that we entered into a longer-term cooperation." In addition to manufacturing special parts for the robots, this collaboration now includes tours of the factory.

be possible without passion and commitment, this is clear to Michael Honig, General Manager Consultant Engineering and AMADA School: "Students who are interested in such a high level of technology so early in their lives will be the highly qualified engineers of tomorrow. The Robotics workgroup at Haan High School is bringing on the new generation of skilled workers that companies will need in the future." The Robotics workgroup is also highly thought of in the school itself. The many competitions it has taken part in guarantee that it is respected by fellow students and teachers alike.

Roland Stiebel: "In the near future, we want to accomplish even more. We want to take our robots into areas where we need very special metal parts. Here, again, we are hoping that we can count on AMADA's support." Because despite all their successes, the team is still waiting to compete in a world championship. "I am absolutely convinced that we will take part in a world championship within the next five years." ●

2017 Western German champions in the RoboCup Soccer competition: Students in the Robotics workgroup.



### Investing in the future

On two afternoons a week, the group, which now numbers 52 students, meets to build their robots together. And during the run-up to competitions, they may even meet four times a week. This would not





CeBIT – a global stage

# Japan visits Germany

Shinzo Abe, Prime Minister of Japan, giving his opening address at CeBIT 2017.

**At CeBIT, Japan showcased itself as partner to the trade fair and thus clearly documented its leading position in the high-tech sector. And of course, AMADA was also there as a leading technology provider.**

One country, 6,852 islands, 127 million inhabitants: Japan is a country of enormous natural and cultural diversity: whether it is the Japanese cherry blossom in spring, the famed Mount Fuji or the history-steeped temples. At the same time, the Pacific nation is renowned as a driver of innovation and a pioneer in the fields of technology, science and digitization. The Land of the Rising Sun invests billions in research and development. As visitors to this year's CeBIT, one of the world's largest and most important trade fairs for digital and technological advances, were able to see for themselves. Taking on the role of official partner country, Japan's leading companies exhibited innovative next-generation technologies, products and services in the Japanese pavilion (Halls 4 and 12) – giving the world an insight into the future. One of the most exciting



At CeBIT, AMADA's V-Factory concept proved exceptionally popular.

exhibitors in Hall 12 was AMADA, which is taking a decisive step toward Industry 4.0 with its Smart Factory concept. Visitors were able to experience flexible robot automation in the form of an EG-6013AR and gain an impression of top-quality digitally networked sheet metal working. With a total of 118 Japanese companies being represented, CeBIT provided a platform for international discussion between nations – at the technological, economic and cultural levels.

## A global partnership

Back in 2011, Germany and Japan celebrated the 150th anniversary of their very first diplomatic relations. Nowadays, the island nation is one of Germany's most important trading partners in the Asian region. Japan also shares fundamental values with the European



Union. The annual summit meetings between the two areas, which have been taking place since 1991, seek for solutions to issues such as climate change, the global economy and support for developing countries. For Japan, the EU plays a leading role in bringing about peace and prosperity within the international community. With the introduction of the EU-Japan "Fest" in 1993, there is also now a regular cultural exchange between Japan and the year's European Capital of Culture. The nations are faced with similar challenges in terms of their future power supply and digitization. Working together, Japan and the European states, and Germany in particular, are conducting research into forward-looking fields such as the environment, materials and social sciences, as well as in robotics-related areas, which were also a focus of interest at CeBIT 2017. •



# Creating customers value with the latest technologies

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Growing Together with Our Customers

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