

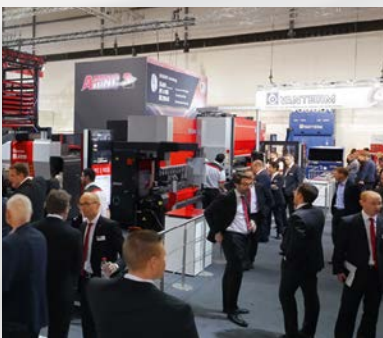
MARKER

The magazine for the sheet metal processing industry

Autumn 2019



Success
through
efficiency 8



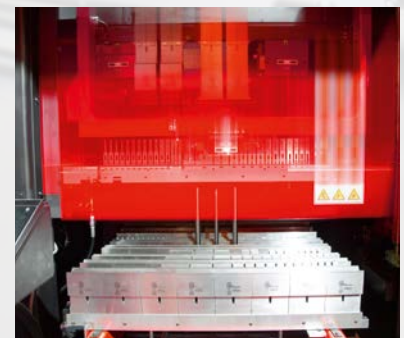
Blechexpo 2019:
AMADA presents
product highlights

2



Laser welding:
The new AMADA
FLW-3000 ENSIS M2

5



Bending solutions:
From manual
to automatic

6

Dear readers,

we continuously work to innovate and develop efficient manufacturing solutions for state-of-the-art sheet metal processing in order to give our customers a decisive advantage over their competitors. You will be able to see this for yourself at Blechexpo: Here, we will be demonstrating six machines that all use ultra-modern technologies in live operation. We are presenting the details of our machine innovations exclusively in advance in this edition of Marker. You can read more about the highlights in our core areas of expertise – laser, welding and bending technology – as of page 3. Just how much of a competitive advantage is achieved by using machines with AMADA technology is illustrated by our user report on the Bavarian company Thaler GmbH & Co. KG. With the acquisition of two AMADA systems, the company was able to dramatically extend its wheel loader manufacturing capacity (page 8 ff). Intelligent software solutions are also playing an ever more important role in the world of sheet metal processing. The Trier-based company Natus GmbH & Co. KG has recognized this and is using the AMADA VPSS 3i BEND Solution Pack to ensure outstandingly fast and reliable production. For more information, turn to page 11.

We wish you all a very enjoyable read.

Your team at AMADA GmbH



IMPRINT

Issued by:
AMADA GmbH
Amada Allee 1
42781 Haan, Germany
Tel. +49 (0)2104 2126-0
Fax +49 (0)2104 2126-999
info@amada.de
www.amada.de

Published by:
mk publishing GmbH
Döllgaststraße 7-9
86199 Augsburg, Germany
Tel. +49 (0)821 34457-0
Fax +49 (0)821 34457-19
info@mkpublishing.de
www.mkpublishing.de

Photo credits:
AMADA GmbH,
mk publishing/
Stefan Durstewitz,
Conny Kurz



AMADA at Blechexpo:
Hall 3 – Booth 3307

Blechexpo 2019

Setting new standards

At the 14th Blechexpo, which will be held in Stuttgart from 5th to 8th November 2019, AMADA will present its innovative processes and manufacturing solutions for the sheet metal processing industry. The focus will be placed on outstanding efficiency, flexibility and digital networking.

40.000 visitors are expected, together with 1,400 exhibitors from 35 countries: Blechexpo is one of the world's flagship trade fairs for the sheet metal processing industry. AMADA will be present in Hall 3, Booth 3307, where it will be presenting six of its latest machines for top-quality manufacturing. The exhibition space of approximately 700 square meters will primarily be dedicated to solutions designed to increase productivity and cut costs in the field of fiber laser technologies as well as Industry 4.0-oriented solutions for the intelligent factory. The highlights will include the ENSIS-3015 RI and VENTIS-3015AJ fiber laser cutting systems as well as the brand new fiber laser welding cell, the FLW-3000 ENSIS M2. In the field of bending technology, the issue of flexibility will form the core of this year's trade fair presentation. Alongside ergonomic, space-saving solutions for the machining of highly complex small and even very small bended parts, AMADA will also present a press brake with a patented automated tool changer, as well as a bending robot that permits a continuous bending process at a consistently high quality with low staffing requirements. Visitors to the booth

will be able to experience the EG-4010 servo-electric press brake, the HFE3i-5012 and HG-1003ATC hydraulic press brakes and the EG-6013AR robot cell. As usual, they will also be able to seek advice from AMADA's experts and find out about the very latest production technologies. ●

For more information on the trade fair:
www.blechexpo-messe.de/en

CONTENT

NEWS

AMADA at Blechexpo 2019	2
VENTIS-3015AJ: Extremely fast, outstanding cutting quality	3
ENSIS-3015 RI: Fast, flexible and reliable	4
Ideal entry level system for laser welding: The new AMADA FLW-3000 ENSIS M2	5
Bending solutions to meet all requirements: From manual to automatic	6

BEST PRACTICE

Thaler GmbH & Co. KG, Polling: Success through efficiency	8
Natus GmbH & Co. KG, Trier: A faster way to the finishing line	11

Fiber laser cutting system AMADA VENTIS-3015AJ

Extremely fast, outstanding cutting quality

The AMADA VENTIS-3015AJ is the world's first new-generation fiber laser that shows off its strengths in the machining of stainless steel and aluminum, in particular – fast and with high cutting quality, it is efficient, economical and reliable. The highlight of the system is its unique LBC technology that makes it possible for the beam to move from side to side almost without restriction during the cutting operation.

Since the beginning of the year, a fiber laser cutting system has been available, in the form of the AMADA VENTIS-3015AJ, that for the first time permits the extremely high speed cutting of stainless steel and aluminum, in particular. This is possible, among other things, thanks to the unique, patented AMADA Locus Beam Control (LBC) technology. Using this technology, the laser beam moves from side to side in different movement profiles around a defined cutting point. Furthermore, without this technology, it would not be possible to choose between the three different operating modes: "Productivity Mode" for maximum cutting speed, "Quality Mode" for practically burr-free cutting as well as "Kerf-Control Mode". This makes it possible to vary the kerf width during cutting and even increase this value to up to twice the width obtained with conventional solid-state lasers. This ensures that every part can be removed perfectly and reliably during the process, either manually or automatically. At the same time, the LBC tech-

nology and the side-to-side movement of the laser beam make it possible to eliminate the slag from the cut quickly and reliably.

More performance, lower costs

In addition, the AMADA VENTIS-3015AJ also excels through its particularly high performance, as numerous practice-oriented comparative tests have shown. Consequently, compared to conventional 4-kW solid-state lasers, it is possible to achieve productivity increases of up to 250 percent, in particular when machining aluminum and stainless steel, while simultaneously reducing operating and manufacturing costs by as much as 70 percent. "As far as productivity and cost efficiency are concerned, the AMADA VENTIS-3015AJ with its four kW is perfectly able to measure up to laser machines in the 6-kW class or even more powerful systems," stresses Axel Willuhn, Product Manager for Punching and Laser Technology. Another advantage: AMADA natur-



The AMADA VENTIS-3015AJ with its 4-kW laser excels, in particular, in terms of productivity and cost-efficiency.

ally also makes the entire cutting data library available for the AMADA VENTIS-3015AJ. This means that the machine can be operated and used without problems just like a conventional laser system. Alongside compatibility with the automation modules of the AMADA fiber laser systems, this was an absolutely vital development criterion. All in all, the AMADA VENTIS-3015AJ is a high-performance machine which, first and foremost, is intended for the fast, efficient, reliable cutting of stainless steel and aluminum. In this way, it is differentiated from the systems in the AMADA ENSIS series, which are designed as all-rounders offering higher power for cutting all material types. "The AMADA VENTIS-3015AJ and the ENSIS systems complement one another and offer individual strengths that bring about specific benefits. In this way, we can ideally cover all customer requirements," is how Willuhn sums things up. •

Fiber laser cutting system AMADA ENSIS-3015 RI

Fast, flexible and reliable

Thanks to its Rotary Index (RI) unit and variable beam control, the AMADA ENSIS-3015 RI is able to machine sheets, tubes and profiles made from different material types quickly and flexibly and can also handle small runs. At the same time, the system stands out thanks to its exceptional reliability and material efficiency.

Compared to its CO₂-based predecessor, the current AMADA ENSIS-3015 RI fiber laser cutting system excels through its considerably higher productivity levels. This increase is due not only to the power of the current 3-kW fiber laser, but also to the special design of the laser head and sensor technology. Consequently, the AMADA ENSIS-3015 RI can switch between flatbed and tube and profile machining in a matter of seconds. This is possible thanks to the Rotary Index (RI) unit. This moves into the system at the touch of a button and the cutting process can start. This outstanding speed when switching between flatbed and tube or profile machining is unique to the AMADA ENSIS-3015 RI and clearly dif-

ferentiates it by eliminating the time-consuming setup processes that characterize conventional systems. It therefore guarantees all users the flexibility they need in order to machine even small batch sizes quickly and reliably.

Highly sensitive sensor system

Whether for flatbed, tube or profile machining: Whatever the cutting process, all users can depend on the particularly high level of reliability offered by the AMADA ENSIS-3015 RI. This is because its sensors react with great sensitivity and extremely quickly to all parts geometries so that, for example, even the edges with greater material depth of a rectangular tube can be cut

reliably and with high precision at all times. The 3D measuring sensor, which is mounted next to the cutting head in order to measure the workpieces, also contributes to the system's reliability.

Variable beam control

Another advantage of the AMADA ENSIS-3015 RI lies in the fact that it can be used for a wide variety of metals. This is because AMADA's variable beam adaptation solution allows the fiber laser to adapt automatically to the type and thickness of the material that is being machined and cut normal steel, stainless steel as well as aluminum, copper, brass or titanium without difficulty. In addition, the AMADA ENSIS-3015 RI operates with material-saving efficiency – thanks to the Water Assisted Cutting System (WACS). All in all, the AMADA ENSIS-3015 RI offers outstanding reliability, flexibility and productivity at a low cost and with optimum material utilization. ●



Reliability and flexibility even for small batch sizes: The fiber laser cutting system AMADA RI.

Ideal entry level system for laser welding

The new AMADA FLW-3000 ENSIS M2

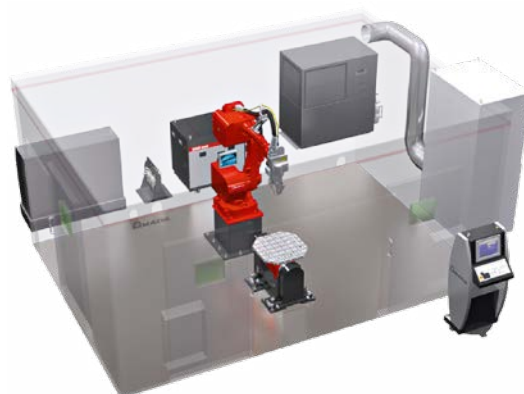
With the new AMADA FLW-3000 ENSIS M2, AMADA is extending the FLW series with a compact, versatile, economical fiber laser welding cell that is ideally suited for newcomers to the world of fiber laser welding cell technology. The new 2-station rotary table in this system, which was exclusively presented at Blechexpo, ensures optimum operability and short cycle times.

The AMADA FLW-3000 ENSIS M2 is the latest development in AMADA's FLW series. Although it is every bit of a match for the M3 and M5 models in terms of function and power, it is less expensive than these systems. This is made possible, in particular, by the new design of the welding cell periphery. Thus one totally new feature is that the welding robot is mounted in a fixed position in the cell with no linear axis, just like the rotary and tilting table in the welding cell. However, the most important innovation is the new 2-station rotary table, which is integrated horizontally in the booth. It is mounted as a circular table that can be rotated through 180° and is installed in such a way that when one half is rotated into the welding cell, the other half is located outside of the booth. In this position, the booth is completely sealed off and the robot can weld safely and reliably in the booth. During this time, the opera-

tor can remove the part on the free side of the table and re-equip the work surface. "Although the 2-station rotary table solution is less expensive than other AMADA welding cell models, it permits particularly short cycle times as well as simple, fast, flexible access," explains Axel Willuhn, Product Manager for Punching and Laser Technology.

Compact power pack

"With the FLW-3000 ENSIS M2, AMADA has rounded off the FLW series of models. This solution is the ideal entry-level model in the field of fiber laser welding cell technology," says Willuhn. "It is particularly suitable for customers who do not need the high-end capacities offered, for example, by the M5 model for their activities, but who mostly want to machine simple, smaller parts geometries." With booth dimensions of less than 5 meters wide and 5 meters deep,



The AMADA FLW-3000 ENSIS M2 is the ideal entry-level solution for fiber laser welding cell technology.

the new FLW-3000 ENSIS M2 is also significantly more compact and takes up approximately 30 percent less space than the M3 model. It also includes the safety booth, which complies with the demanding T2 safety standard. As an active safety system, this monitors the entire welding process and halts it automatically if necessary. The variable beam control that automatically adapts the energy penetration from the fiber laser to each material and welding task, the Ring Mode Beam, weaving (rotation of the laser beam) and the wire feed to bridge large gap sizes round off the new welding cell's performance features. The FLW-3000 ENSIS M2 will be available as of fall 2019. ●

Bending solutions to meet all requirements

From manual to automatic

With the EG-4010, the HFE3i-5012, the HG-1003ATC and the EG-6013AR, AMADA will be presenting both manual and fully automatic bending solutions at Blechexpo. These systems offer outstanding speed and precision for all component sizes and production requirements, while also ensuring the flexibility needed for the highly efficient manufacturing of even small batch sizes.



With the EG-4010 press brake, AMADA is presenting a particularly compact, purely electrically driven machine with 400 kN of press force and a beam width of 1000 mm. The ergonomic high-speed system is perfectly suited for the production of small parts even with larger sheet thicknesses which also demand a high level of precision. One highlight here is the DSP drive system which features two electric motors on both sides at the upper press beam. As a result, the machine can be positioned extremely quickly and absolutely reproducibly to a precision of up to 1/1000 mm. Equally precise is the TDS function that determines varying sheet thicknesses with complete accuracy. Here, a touch sensor system automatically compares the actual and calculated die positions when it reaches the sheet. Alternatively, it is possible to use the Bi-J angle measurement system, which measures the

actual angle of the part during the bending process. Both features ensure an outstandingly precise bending process right from the very first part. In addition, thanks to its extremely rigid machine frame, the AMADA EG-4010 can also operate in coining mode.

New: The AMADA HFE3i-5012

AMADA will also be presenting an ergonomic press brake for best working conditions at Blechexpo in the form of the AMADA HFE3i-5012. With a press force of 500 kN and a working width of 1200 mm, this hydraulically driven unit has been designed for the fast, convenient production of small parts with average levels of complexity. Particularly striking is the outstanding ergonomic design for operators, featuring a work table, chair and tool cabinets which also contain drawers. However, when it comes to productivity and operating speed, the

AMADA HFE3i-5012 also satisfies the most demanding needs – in particular thanks to the innovative FAST-Finger backgauge. This permits fast axis travel speeds of up to 500 mm/s without being slowed down by braking operations, even in the safety area. Another advantage: The AMADA HFE3i-5012 has a particularly large open height and can therefore be equipped with all commonly used tool systems. At the trade fair, the unit will be equipped with the AMADA AFH tool system (stage-die system) which makes it possible to combine dies of different sizes in one and the same setup.

Automatic setup time reduction

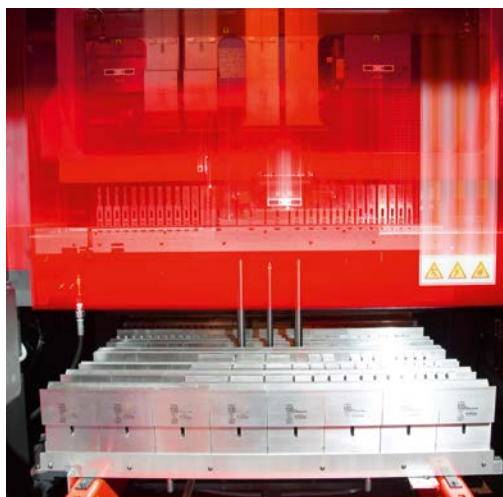
The AMADA HG-1003ATC provides even more efficiency with its automatic tool changer, 1000 kN of press force and a beam width of 3000 mm.

Compact and fully electric:
The AMADA EG-4010.



Perfect for small parts with a moderate level of complexity:
The AMADA HFE3i-5012.





“The machine permits particularly economical, fast and precise manufacturing even for one-off parts,” explains Tankred Kandra, Product Manager for Bending Technology. “The AMADA HG-1003ATC is therefore the high-performance solution, in particular given the increasing demand for smaller runs.” One outstanding feature is the automatic tool changer (ATC) which reduces set-up times to a few minutes. This makes the ATC the fastest and most powerful tool changer currently available on the market. Another feature that makes the AMADA HG-1003ATC unique is the automatic, mobile foot pedal. This moves automatically to the required workstation at the press brake and makes the operator’s practical activities very much easier. Last but not least, thanks to the Bi-S system, the machine has an automatic angle measurement system. This can be used as an individual unit or in a pair and is

also able to perform two and three-point measurements.

Fully automated bending cell

By contrast, the AMADA EG-6013AR robot cell works completely autonomously. This robot cell, which has a beam length of 1,300 mm and 600 kN of press force, comprises a robot that travels parallel to the machine as well as a high-capacity automatic tool changer and gripper changer. The robot not only loads the system from the total of four loading stations and places the completed workpieces in boxes or on a conveyor belt. It also changes the bending tools and grippers itself and performs workpiece handling throughout the entire bending process. “The AMADA EG-6013AR stands for extremely high speeds, outstanding precision and exceptionally accurate positioning,” emphasizes Tankred Kandra. “In this way, it permits long, unatten-

AMADA provides the right press with customized automation level for all bending requirements.

ded runtimes in automatic mode, in particular when manufacturing small parts that involve complex handling operations.” The system, which is equipped with the DSP drive system, is able to machine sheet thicknesses of up to 4 mm. Another highlight lies in the fact that the backgauges of the AMADA EG-6013AR press brake are equipped with a special sensor system. On every bend operation, this actively measures the actual sheet position in X- and Y-direction and corrects this automatically if necessary. As a result, the workpiece is always absolutely parallel to the backgauges and there is no sagging. The integrated sheet thickness sensor, which checks for double sheets, ensures added security. Last but not least, the AMADA EG-6013AR can also be equipped with the Bi-S active angle measurement system. ●

One highlight of the AMADA HG-1003ATC is the automatic tool changer (ATC).



For fully automated manufacturing:
The AMADA EG-6013AR.



Thaler GmbH & Co. KG, Polling

Success through efficiency

With a new AMADA ENSIS-3015AJ fiber laser cutting system and a new AMADA HFE3i-2203L press brake, Thaler GmbH & Co. KG in Polling has extended its wheel loader manufacturing capacity. The two systems are employed at the very beginning of the vehicle manufacturing process and supply approximately 90 percent of the installed components – quickly and with outstanding precision and a high level of automation.

The fiber laser slices smoothly and quickly through the 25-mm thick sheet and cuts out a range of very different intricate, high-precision parts. Next, the fully cut sheet travels automatically into the neighboring loading and unloading tower,

which supplies a new sheet to the cutting system while it is still running. At the same time, an employee is already picking the parts and starts the bending process at the nearby press brake. After a few manual operations, the component



is ready – in this case, an engine strut which is then sand-blasted and painted. This process is characteristic of everyday production at the Polling-based company Thaler GmbH & Co. KG which, as Europe's third largest yard loader manufacturer, produces approximately 2,000 wheel and yard loaders every year using such components. "The driver's stand, the rear and front chassis and the lifting arms of every one of our loaders are manufactured exclusively using AMADA technology. That represents 90 percent of all the

components in the vehicle," explains Managing Director Manfred Thaler. "They form the basic structure for our yard loaders, which we then equip with electrical, hydraulic and plastic components and tires."

Fast cutting

Since 2019, Thaler GmbH & Co. KG has been using a new AMADA ENSIS-3015AJ fiber laser cutting system with an AMADA ASF 3015-EU loading and unloading tower and AMADA HFE3i-2203L press brake to cut and bend the sheet metal parts.

With its 9 kW of laser power, the new fiber laser cutting system has now replaced the

2-kW predecessor model. "Even with our first ENSIS, we were convinced not only by the system's high level of automation but also by the quality of the cuts produced by the fiber laser and, in particular, by its low energy consumption and the resulting economic efficiency," says Sonja Thaler, Head of Production at Thaler. "Our decision in favor of the new 9-kW model was based not only on the optimized features, for example the even better penetration time of under a second, but naturally also on the improved performance. The system simply cuts much faster than our previous model and creates valuable capacity for us." As a result, Thaler GmbH & Co. KG was able to replace its costly 3-shift operation to a much more manageable one and a half shifts. At the same time, cutting the particularly thick sheets, which can measure up to 25 mm, is absolutely no problem for the new system. Another advantage: ▶



Some 90 percent of all the components in Thaler's wheel loaders are manufactured using AMADA technology.



Valuable support: Rainer Freudlsperger, Branch Manager at the AMADA Technical Center in Landshut.

Convinced by AMADA's technology: Sonja and Manfred Thaler (from right).

► Thanks to the precise penetration point, Thaler GmbH & Co. KG can also use the AMADA ENSIS-3015AJ for part-in-part cutting and thus make optimum use of its raw materials.

Decisive support

"For us, the proximity to the AMADA Technical Center in Landshut was, and still is, a decisive factor. There, we always have an expert partner who supports us quickly and effectively if we ever have any questions or problems. Unlike the case with other vendors, we were able to perform a number of successful joint test runs there, including before the purchase, and this also helped persuade us to purchase our first fiber laser system," says Manfred Thaler. "At the AMADA Technical Center in Landshut, we not only research and develop new AMADA solutions but we are also able to provide optimum support to our partners and customers in southern Germany and work on appropriate solutions for them together – both before and after they have acquired an AMADA

system," confirms Rainer Freudlsperger, Branch Manager at the AMADA Technical Center in Landshut.

From a single source

Another advantage for Thaler GmbH & Co. KG lay in the fact that the existing AMADA ASF 3015-EU loading and unloading tower was compatible with the new fiber laser cutting system. "All AMADA systems have a modular structure and, on request, the individual units can be custom configured to form a harmonized, highly productive overall solution," says Franz Tafelmaier, Sales Executive South at AMADA. All this is backed up by the AMADA VPSS 3i programming software which, as the latest cross-platform software solution, integrates all the AMADA systems in a single end-to-end manufacturing process and provides a virtual step-by-step simulation of the entire production process in advance. Here, the new AMADA HFE3i-2203L press brake naturally also has a role to play. "Our new press brake not only offers

outstanding manufacturing speeds and extreme precision but, like the ENSIS, is also integrated in the AMADA sheet metal processing network via the VPSS 3i software," explains Manfred Thaler. "The automatic generation of the bending sequence, in particular, saves us a lot of time and effort."

Independent and flexible

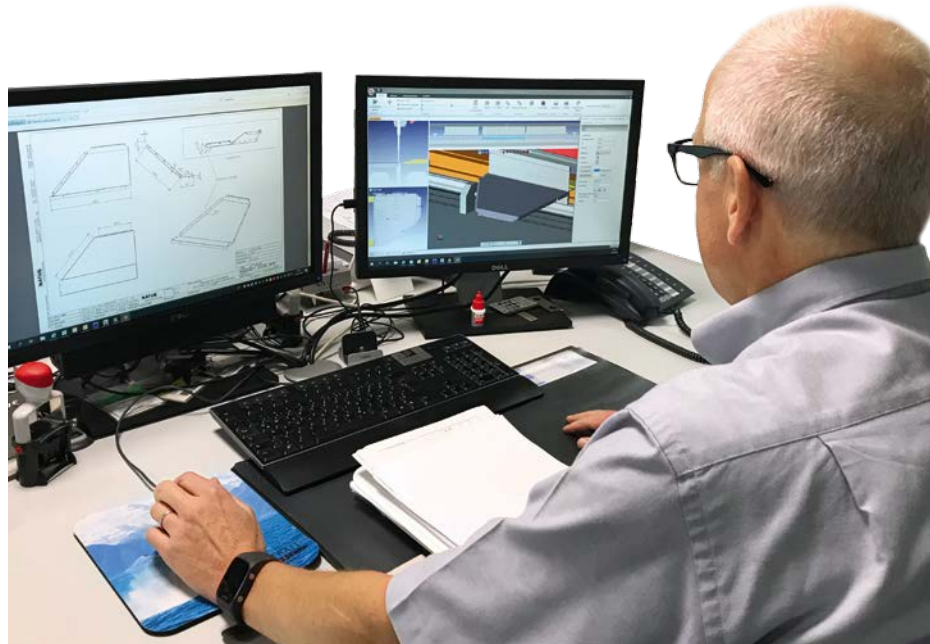
With the two new AMADA systems, Thaler GmbH & Co. KG has acquired significant new capacities that will ensure successful production operations at its Polling site in the future. Sonja und Manfred Thaler agree: "This not only means that we are independent of suppliers in terms of both timing and quality, but it also gives us flexibility, in particular when it comes to changes or adaptations during production." Thanks to their excellent experiences of AMADA's systems, they are already thinking of acquiring a new machine in the form of an AMADA FLW ENSIS welding robot. "That would enhance both our range of capabilities and our capacity." ●

Natus GmbH & Co. KG, Trier

Getting there faster

The AMADA VPSS 3i BEND Solution Pack automatically supplies the perfect sequence of bends for any component. This makes production particularly fast and reliable – and allows users such as Natus GmbH & Co. KG in Trier to manufacture a wide variety of product variants even in small batch sizes.

Intelligent software solutions such as AMADA's VPSS 3i virtual prototyping capability are playing an ever more important role in the field of sheet metal processing. They provide a fast, flexible response to the growing number of variants and shrinking batch sizes. When used in combination with AMADA's high-performance systems, they allow users to become significantly more competitive. This also applies to Natus GmbH & Co. KG in Trier, a company whose manufacturing portfolio includes low-voltage and medium-voltage switchgear. Since 2017, the company has been using an AMADA HG-1003ATC press brake coupled with the AMADA VPSS 3i BEND Solution Pack to manu-



facture the sheet metal parts needed for the cell structures and racks. "At the AMADA HG-1003ATC, we manufacture approximately 300-400 different sheet metal parts in thicknesses of up to 3 mm," explains Hermann Theis, Deputy Head of Manufacturing at the Natus sheet metal processing center. "This system, with its automatic tool changer, is ideal for our many short runs of only ten parts or less."

Automatic bending sequence

The AMADA VPSS 3i BEND Solution Pack makes a vital contribution to this high level of efficiency. "We upload the CAD design engineering drawing as a Step file (3D model) and enter the characteristic values for the order, such as the type of material," says Theis. "The software's automatic mode is then particularly valuable for us. This works out the bending sequence fully auto-

matically in just a few seconds, suggests the setup processes and configures the system accordingly. As a result, we can work quickly, reliably and without conflicts." He adds that the process can be automated even further by using AMADA Sheet-Works. "All the user then has to do is save the design engineering data in the relevant folder," explains Lukas Pollok, Software Application Engineer at AMADA. "From this, the software itself generates a virtual metal part, processes it and then creates the required bending program using VPSS 3i BEND."

Design engineering solution

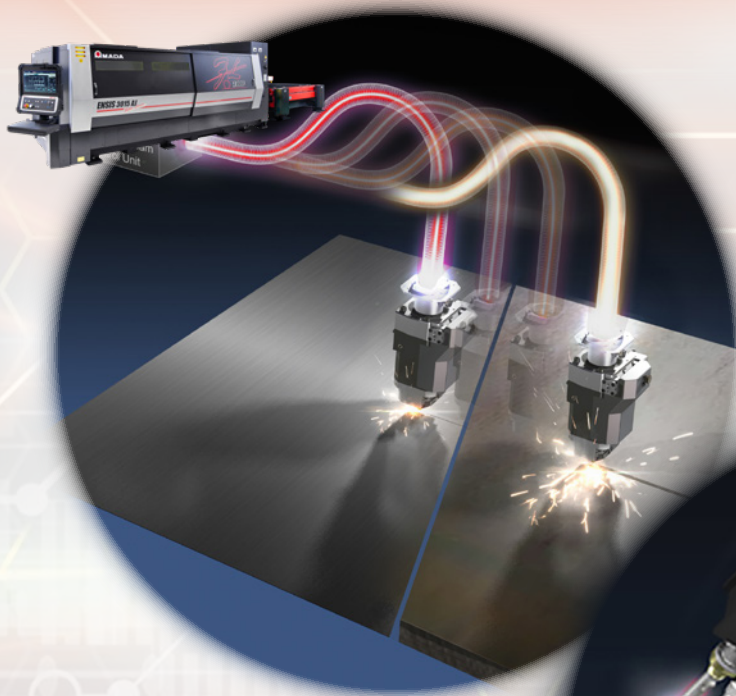
At Natus GmbH & Co. KG, approximately 85 percent of all the required parts are programmed quickly and easily using AMADA VPSS 3i BEND and, to date, some 6,000 component programs and the corresponding variants have been created. All the parts that the company has ever manufactured are stored in the system and can be reproduced with absolute fidelity at any time thanks to the barcode on the work plan (routing card). "The VPSS 3i Bend program runs extremely well and we very much like working with it, in particular in automatic mode," is how Theis sums things up. "In this way, we are able to solve practically all our design engineering challenges quickly and efficiently."●



Hermann Theis (top) from the Natus sheet metal processing center uses the AMADA VPSS 3i BEND Solution Pack for an AMADA HG-1003ATC press brake.

INCREDIBLY FLEXIBLE

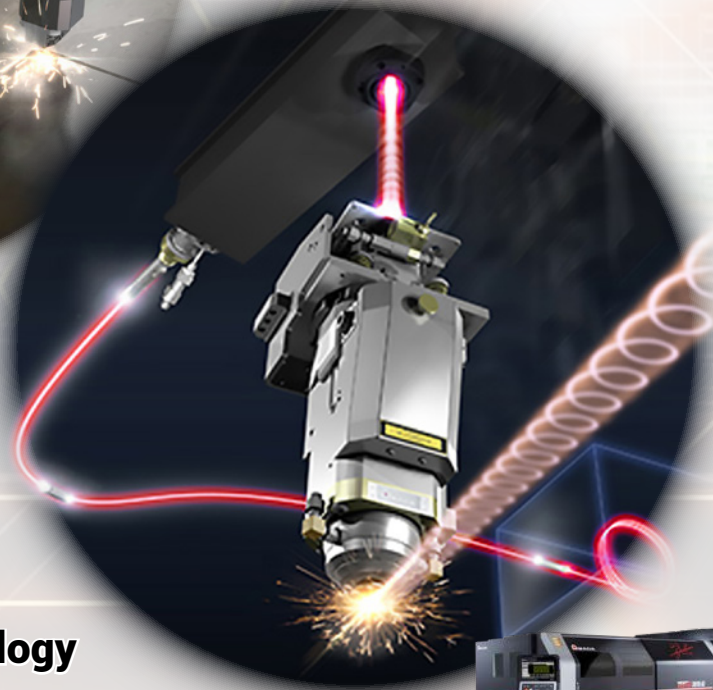
AMADA FIBER LASER TECHNOLOGY



ENSIS

Variable Beam Control Technology

Processing of sheets, tubes and profiles
Laser cutting and welding



NEW

VENTIS

LBC Technology

With flexible beam pattern



Growing Together with Our Customers



05-08 November 2019
Stuttgart
Hall 3 – Booth 3307



AMADA GmbH
Amada Allee 1
42781 Haan - Germany
www.amada.de