INSPIRED FOR TUBE

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AKRAPOVIČ
LASER FOR SPEED

HK LASERTECHNIK
NOTHING IS IMPOSSIBLE!

PROFIM
ERGONOMICS, TECHNOLOGY AND AESTHETICS, THE SEARCH FOR PERFECTION
The central theme of the future is data handling. Technology provides us with access to an enormous amount of information, which is frequently not used and often not saved. Automatic control theory has accustomed us to simple thinking in categories of control with a feedback loop. For example, if the indoor temperature rises above the set threshold, the air conditioning will start. Available data is countless, it originates from various sources, it is complicated to handle, and individual items of data are often inconsistent. Data collection and analysis requires unconventional tools in order to obtain hints on the decisions that should be made. This entire field is termed “big data”, and it is ubiquitous today.

In reality, this is not a new concept, but a natural and gradual evolution of concepts and algorithms intended to meet the demand for technological development. An example of the result of this development is a software program available in BLM Group’s Lasertube systems, entitled “active tools”, where various functions have been grouped into one place. Algorithms applied in “active speed” controls multiple cutting parameters and optimizes cutting quality. Algorithms in “active scan” determines the actual shape of the pipe that we are working on. This allows us to perform geometrically correct processing and is the result of experience transferred from humans to machines via data collected and analyzed over time. These are the first steps in the direction of what is called the “fourth industrial revolution”.

ARE WE READY FOR THE FUTURE?

Giovanni Zacco
Market Development Manager
founded in 2008 and specializing in laser processing of round pipes and sections, it is a rapidly developing enterprise. today the company has twelve partners and supplies customers in sectors all throughout germany. the company is continuously striving to achieve its main objective through very high quality and a comprehensive range of services. the objective is to keep their steady customers, even in a difficult market situation, and HK-Lasertechnik bases its uncompromising production engineering on these objectives.

QUICK CHANGES OF ORDERS ARE THE KEY TO EVERYTHING

"the market dynamics really took us by surprise", christian heber reminisces of spring 2015. at that time, such significant growth of demand for laser-cut pipes and sections could not have been predicted. the number of orders placed by customers, both old and new, grew.

"the market is becoming more and more difficult for us, for manufacturers and for third parties. the growing number of customers requires immediate delivery, and waiting times are no longer acceptable", explains the managing partner, referring to the daily reality of work. "more and more often, customers are ordering components and/or modules made of highly reflective materials, such as aluminum, copper and brass, which cannot or can only partially be processed with a co2 laser".

all of this led us to invest in a fiber laser cutting machine, with a high level of automation and a very short setup time, enabling quick transition between one order and the next.

From early in the morning to late at night, at ADIGE’s headquarters in Levico Terme, the HK-Lasertechnik team ordered loading of the entire range of materials available at the demonstration center for the LT FIBER laser machine. Starting from long steel pipes with thick and thin walls, and ending with open sections and highly reflective materials for which the fiber laser is the perfect solution, all cutting variants that can be imagined were tested. "we are experimenting with this everyday. even we do not know in advance what the demand will be and what materials our customers will request", adds Heber. "Generally speaking, I was interested in what the machine was capable of, and what it could withstand under extreme conditions".

Centering of pipes with large diameters, cleanliness of cutting, stability, and the safety of the process were important aspects for him.

On many occasions it seemed that the machine had reached its limits, but in the end, the experts at ADIGE and HK-Lasertechnik always found a solution together, for problems in all situations.

According to the motto “nothing is impossible”, everyone made a contribution, bringing their own experience and knowledge. Equal exchange of information is just as convincing as the potential of LT Fiber. Besides the speed of the setup process and the machine’s speed and flexibility, the stability of the clamp during cutting of pipes with large thicknesses is also prominent.

“Quality is the basic condition for our customers’ satisfaction”, is what is written on the HK-Lasertechnik website. thanks to the LT Fiber machine, the company is now able to easily meet this condition, more than ever before.

"in the past, we installed a system for fiber laser cutting to be able to efficiently manufacture large quantities of parts while unburdening our co2 laser", explains Heber. "at the time, we let ourselves fall into routine work, and this time, we wanted to make absolutely certain that we would not be in the same situation with the LT Fiber machine within a short time. at the end of the day, we had no doubts that ADIGE is the right partner for our future". This is how the decision in favor of this innovative fiber laser machine was made in Levico Terme. Moreover, the LT FIBER team had a vision of future development, which supported Heber’s decision further.

EXPRESSING OUR EXPERIENCE

Discovering the Machine’s Limits

One element made of structural steel, one component made of aluminum, copper and brass, and a stainless steel module next to them, the HK-Lasertechnik GmbH, based in Salzkotten, North Rhine-Westphalia, Germany, is a typical manufacturer for third parties. absolute flexibility in day-to-day work is a priority for this company.

Nothing is Impossible!

HK-Lasertechnik GmbH

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At the end of 2015, replacement of machinery and start-up of the LT FIBER unit was completed without standstills. "The ADIGE company, and Andreas Köster from BKU GmbH, have been at our side for years and have been providing us with any assistance we need. As the distribution partner of the BLM GROUP and BLM GROUP Deutschland, they have worked together in cooperation, with a watchmaker’s precision", observes Heber.

**OPTIMIZED PRODUCTION PROCESS**

Today, the new LT FIBER unit purchased by HK-Lasertechnik is working at full speed for three shifts. Up to ten changes are made to an order every day. The speed of configuration is very important.

In the LT FIBER system, setting up the material feed mandrel or main clamp in the front part of the machine is performed completely automatically. Operators must only change the parameters of individual sections in CAD/CAM software. Next, the machine makes the required clamp adjustments by means of servomotors. This process takes place during loading of material by operators. The more frequent the changes in production, the more beneficial the time savings are. Another advantage of the LT FIBER machine is automatic unloading of waste generated during the cutting cycle and the loading cycle. The Active Speed software significantly facilitates regulation of cutting parameters.

And if this is not enough:

thanks to the new Active Scan option, HK-Lasertechnik will be able to reduce the cycle of measuring pipe cross-section to just 0.4 seconds.

Particularly in the case of long and thin pipes, measurement is critical for quality, since pipes are positioned in a line, in central position, for laser cutting, therefore they must be positioned perfectly.

Because of the high speed of the production process and a 2 kW laser source, HK-Lasertechnik is able to keep delivery deadlines with punctuality that could not have been achieved before. The LT FIBER machine makes it possible to achieve significant growth of productivity, especially during cutting of highly reflective materials such as aluminum, galvanized steel and stainless steel. This means additional production capacity.

**THE RIGHT MACHINE FOR MANUFACTURERS FOR THIRD PARTIES**

"LT FIBER is the right machine for us. The practical test confirmed this", Heber summarizes his experience. Besides greater flexibility in processing materials, another advantage of fiber laser technology is, above all, its energy efficiency. Fiber lasers are the right solution", Heber is convinced.

"Thanks to this important investment in LT FIBER, we have strengthened our position in the market significantly. All of this because of the fact that the machine allows us to cut pipes up to a length of 6.5 meters, with a diameter up to 140 mm for round pipes and 120 mm for square pipes. Many manufacturers for third parties will have to adapt". In summary, strengthening of competitiveness is the decisive element driving further investments in the future.

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Profim is a leading European company in the manufacturing of office chairs. Its central headquarters is in Turek, found near Poznań in Poland. This is a plant with an area of 50,000 square meters, employing 2,000 employees and manufacturing approx. 100,000 chairs per month. Founded in 1991 with private capital only, Profim had revenue exceeding €98m, exporting 70% of its production to 50 countries around the world, including Europe, the United States and Australia, thanks to its 1,100 retailers.

Ergonomics and design are the main aspects that should be emphasized if Profim is to become the largest Polish manufacturer in the sector.
We are talking about a high level manufacturing facility, with important numbers and complicated problems related to production management. High numbers do not necessarily mean repeat production. With over 50 collections, each consisting of fifteen different office chair models, the number of different components to be processed is extremely high. Thus, there are high numbers, but there is also extreme care for product quality and the need for flexibility, as well as strict cost control.

For 25 years, Profim has processed metal pipes to make its products. Because of this, they have become experts in the field of cutting, bending, forming and welding. We spoke with Ian Kuroeba, Manager of the Design and Technology Department, and with Process Engineer, Włodzimierz Augustyniak. We asked them about the main features of the machines they use for production:

“Machines must have good quality and price. Quality is more important from the perspective that machines must, above all, perform the work that they were purchased for with continuity and precision. Only then is it assessed which product has the lower price.”

An example of this philosophy is the application of Lasertube systems, which certainly cannot be called cheap, but which helped Profim solve certain problems, allowing for the achievement of comprehensive savings. “Before the time of the laser, we had to perform drilling, milling and cutting on three different machines,” explains Augustyniak. “Today, thanks to the laser, we perform everything in one sequence without expensive movement from one machine to the next”. They noticed the first Lasertube system at a trade fair in Düsseldorf. The machine made a great impression, particularly with its precision and speed of work.

“We saw the capability of performing many different processes using a single machine with high output, precision and repeatability.”

In the past, we made welds manually, and today the process is automated with 16 robotized automatic welding stations. We manufacture components in small or large lots, maintaining the same quality in every piece. With the production diversity of the company in mind, the aspect of flexibility certainly cannot be neglected.”

COMFORT IS A COMBINATION OF ERGONOMICS, TECHNOLOGY AND AESTHETICS.

Chairs are a design problem when the quality of the product’s aesthetics play a decisive role. In order to achieve such quality, it is necessary to ensure precision of the processing.

“Precision is indispensable for achieving constant high quality” explains Kuroeba.

“The accuracy and repeatability afforded by the LT FIBER Lasertube system has allowed us to apply robotized welding, making the entire process more reliable and stable.”

“Comfort is a combination of ergonomics, technology and aesthetics.”
QUALITY IS INDISPENSABLE, BUT FOR THE RIGHT PRICE.

The first contract with BLM GROUP and purchase of their TS72 cutter for straight cutting of pipes, resulted in partnering with the BLM GROUP as an exceptional supplier, capable of meeting the requirements of bending and laser cutting. “We had a need to perform die shearing during the bending sequence, and our previous supplier only had one machine for hydraulic shearing. Electro-machining was more expensive than the solution from BLM, so we changed our supplies,” Kurcoba adds. “Quality is fundamental, but it also needs to be a reasonable price, otherwise it is unaffordable.”

The first Lasertube system delivered in 2010, along with an E-TURN pipe bender, was the LT823D system with a CO2 laser and a rotary head capable of performing cuts relative to the pipe’s surface. “CO2 cutting is used in 10% of our applications, however it is also very useful in cases of larger thickness, when sealing twisted joints, and allowing for proper joining of edges for the next welding”, states Augustyniak. “We never conducted an actual, detailed comparison of processing costs before and after application of the laser, but its advantages are evident. The complete production cycle is many times faster in many cases,” explains Augustyniak. In reality, Lasertube systems played an important role in Profim’s activity at the time.

The first Lasertube system delivered in 2010, along with an e-TURN pipe bender, was the LT823D system with a CO2 laser and a rotary head capable of performing cuts relative to the pipe’s surface. “3D cutting is used in 10% of our applications, however it is also very useful in cases of larger thickness, when sealing riveted joints, and allowing for proper joining of edges for the next welding”, states Augustyniak. “We never conducted an actual, detailed comparison of processing costs before and after application of the laser, but its advantages are evident. The complete production cycle is many times faster in many cases,” explains Augustyniak. In reality, Lasertube systems played an important role in Profim’s activity at the time.

Rapid Prototyping, Big Advantage

In the office furniture sector, creating new product lines is a complicated process. Small details can be very significant in defining the success of a given product, from the perspective of both design and ergonomics. At Profim, the creative stage is entrusted to high-level designers from all over the world. Next, the designing and prototyping stages are conducted, which can last from several months to several years. “The production cycles of Individual elements must be accounted for, and a final result approved by the designer and owner must be achieved. And of course, the owner must assess a design from the economic perspective in its entirety as well,” said Kurcoba.

It is within reason that an entire department of the company is dedicated to prototyping work, and its work is facilitated by the Lasertube systems. “In the past, work covered passive prototyping based on the manufacturing of complicated format frames and dies, which were often destroyed after slight changes were made to them. Today, lasers make it possible to create prototypes in a very short time, at much lower costs than in the past,” states Kurcoba, who shows us several desks with a lifting mechanism enabling the adjustment of the desktop height, which is supported on a telescope frame, achieved by utilizing a particularly creative laser process.

Profim’s primary objective is to identify and completely satisfy the customer’s needs in the fastest and most efficient way possible. How can one disagree?
Pune is a well-known Indian automotive hub where important companies like Tata Motors, Bajaj Auto and Mahindra have their manufacturing plants. On the other hand Pune is also home for many successful companies from diverse industrial sectors. Such an example is EPS Worldwide, a manufacturer of automatic wave soldering machines for PCBs and its sister company, Inflow, which manufactures welded assemblies and also offers laser cutting services.

WESTERN QUALITY, ASIAN PRICES

INFLOW SYSTEMS

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RAPID GROWTH

EPS was founded in 1990 by Atul Limaye who is still one of the directors of the company along with his brother-in-law Aakash Joth, and cousin, Sunil Jog. Limaye (his first name Atul literally means unparalleled) told us the story of EPS. Having worked for some time with electronic companies in the Pune area, he decided to start his own business to design and manufacture wave soldering machines. The company was started in 1990 with four employees. In a short time the product range was expanded to other systems used in the manufacturing process of PCBs, and the importance of the EPS brand grew. They also received some awards for indigenous technological development.

Inflow System was established in 1999, in the rear half of EPS’s shed, to produce laser-cut sheet-metal parts for machines manufactured by EPS. A laser sheet cutter was purchased soon after and since the captive load was less than the capacity of this machine, it started offering laser sheet cutting services to other companies from different industrial sectors. “Even if a customer comes to us with a small volume requirement, we are ready to serve him”, explains Limaye. This was the winning strategy because the company started its growth immediately. The growth in demand resulted in the purchase of a second laser sheet cutter in 2000, and even today the same philosophy is fuelling the growth of the company. In 2002 EPS built and moved into a new building, and Inflow moved to a new location in 2008. More laser sheet cutting machines were added, and at one time they had five of them.

A turning point came about for EPS 10 or so years ago when some western OEMs (USA, England and Germany) from the same sector of activity approached EPS with a proposal to manufacture these machines in India and export them worldwide. EPS grabbed the opportunity and started manufacturing machines for these western OEMs, while continuing to manufacture machines under their own brand. The machines manufactured for OEMs are directly shipped from EPS to the final users.

The technical capabilities of EPS are appreciated by these OEM customers to the extent that now EPS not only manufactures their machines but sometimes is asked to upgrade their older models from the technological viewpoint, as well as the design standards/regulations viewpoint. Now EPS is an OEM Machine supplier for Germany, US, Britain and other European Companies.

Today EPS sells about 30-40% of its production in the domestic market while the rest of it is exported all over the world. “We are aware that we have good quality products capable of being competitive in terms of specifications and performance, not only in India, but also abroad” explains Limaye. “And so we participate in various international exhibitions”. Today EPS has 30 employees and a revenue of about 1.5 M€

ONE MACHINE FOR TWO SECTORS

Inflow has always been processing tubes for EPS that are used in the fabrication of tubular machine frames. Until recently, even if the sheet metal component of the tubes were processed using traditional methods. The decision to buy ADIGE-SYS’s LCS, a combo laser cutting machine for tubes and sheet metal, has radically changed this situation, and in fact, it was their first step in the world of laser tube processing. “In our area, there are quite a few laser sheet cutting machines and some of them are equipped with a rotary axis for tube cutting. Some tests for cutting tubes on these machines were carried out by different users, but the results were not good enough from a precision viewpoint as well as from an economical viewpoint. It was simply not a competitive solution; the rotary axis is a toy and it can’t deliver the results like a real industrial system”, states Limaye.

In fact, ADIGE-SYS’s LCS is a combination of two completely automatic laser cutting systems; one for tubes and one for sheet metal. The combination has exactly the same performance in terms of cycle time, or in other words cost per piece, as there are separate dedicated systems for tube and sheet metal. “Before purchasing the LCS, we had a long discussion with another BLM GROUP customer who has a similar system. We considered his experience, and then I also visited ADIGE-SYS to see the LCS. The overall considerations convinced us to decide in favor of buying the LCS”, explains Limaye.

WESTERN QUALITY, ASIAN PRICES

The machines for the electronic industry are going through a very competitive phase. The main competition is coming from Asia (mostly from China), and one can only win in such a situation if one can offer “Western” quality at a price that is comparable to Asian prices. For this reason, EPS/Inflow opted for a modern machine equipped with the latest laser technology in order to have higher performance at a reduced operating cost.

“We decided to go for a fiber laser to have higher cutting speeds and at the same time lower electrical consumption and thus, lower operating costs”, says Limaye. “Most of the material that we use is of low thickness, and cutting speed becomes an essential variable to be competitive in the market, whether it is sheet metal or tube.”

The workload at Inflow is typically that of a job-shop, with small batch quantities and a lot of variety. Every year EPS alone manufactures a total of 500 machines of various models, and in such case, laser becomes an essential component of efficient operations. The capability of laser tube cutting allowed them to have the same advantages such as flexibility and productivity on tube processing that they had been enjoying with sheet processing for years. On the other hand, it allowed them to widen their offerings in terms of processing capabilities, which helped them to strengthen their relationship with some of their existing customers, and win some new customers.

“One of our customers manufactures fitness equipment and he asked us to cut tubes for his tubular structures. When we started supplying him laser cut tubes, he could increase his weekly production from 4-5 structures to 40-50 structures; an eight to tenfold increase”, says Limaye and continues. “Once a customer sees the advantages offered by laser cut tubes, he does not turn back; he wants all his tubes to be laser cut.”

The laser tube processing really offers significant reduction of cycle times and thus, cost reduction of the entire manufacturing process. Just think of a “cut and bend” technique, or various self-locking joint configurations that can be easily programmed on all the BLM GROUP Laser tube systems. These techniques simplify assembly of structures, reduce the possibility of errors and improves the welding quality, reducing the time required for welding. These aspects were confirmed by Limaye.

“Before getting the LCS, it would take 2-3 days to build one of our machine frames. Today we assemble 6-7 frames in a day.”
This was achieved by appropriately modifying the original frame designs to exploit the advantages of Lasertube cutting to its maximum extent. It was an easy operation because ARTUBE can directly import 3D structures and automatically generate cutting programs for the LCS.

NOT ONLY TUBES

The LCS replaced two older laser sheet cutting systems. Even if it opened new doors to tube cutting opportunities, its main task is still sheet cutting. It is extremely fast on thin sheets making it competitive in the marketplace. All the thin sheet cutting is carried out on the LCS by default. As far as tubes are concerned: “If the things go as they are going now, it is quite possible that in the not so distant future we may buy a new machine dedicated for only laser tube cutting”, says Limaye.

The modernization of production systems is a MUST, even in India, because it is always more and more difficult to get skilled workers and the manpower cost is going up rapidly. In these conditions, automation of production systems is not to be considered a luxury, but a necessity.

“Modern manufacturing systems not only offer a better work environment but they are also an important element to attract and retain qualified manpower”, points out Limaye, who is extremely sensitive about the retention of qualified workers.

The use of laser cutting for cutting tubes and sheet metal offers interesting opportunities in the automation of light to medium fabrication, starting with robotic welding. Considering these opportunities and the ever increasing demand for finished or semi-finished assemblies, Inflow has decided to build additional factory space to offer fabrication services as well.

To purchase a combined laser cutting machine capable of cutting tubes and sheet metal was an entrepreneurial risk that Inflow’s owners have taken. It has started showing promising results and Inflow feels confident that this system will help them to achieve their 20% annual growth target for the next few years.
Mr. Shao is the General Director of Shanghai Dimi, a company specializing in processing metal sheet and pipe intended for the office furniture and retail outlets market. The history of Shanghai Dimi is strictly linked to the history of Shanghai Vision. One must go back to the group’s formation to fully understand Dimi’s strategy and business model.
Shanghai Vision was founded in 2000 with the intent of occupying a position in the high-end segment of the furniture market in China. At the time, the sector was saturated with small and medium local manufacturers, who offered low-quality products. There was no strong player in the market capable of offering a wide range of innovative products. Vision planned to keep ahead of trends and decidedly aimed for the high-end segment, aware of the fact that the market was slowly heading in that direction. The investment was significant, and included the purchase of different lines manufactured in Europe for automated wood processing. After 16 years, it can be stated with certainty that Vision achieved this, and today is among the top 5 manufacturers of wooden furniture in the country, and number one in the Shanghai-Jiangsu-Zhejiang region, the richest and most industrialized area in China. As growth indicators emerged, Vision was able to expand production as early as 2007, opening a new plant south of Shanghai, with an area of approximately 50,000 square meters, now the group’s headquarters.

TRANSITION FROM WOOD TO METAL
This began to change in 2013, when the DIMI project was started. Under the management and supervision of Mr. Shao, who had previously occupied the position of Vice General Manager at Shanghai Vision, a modern plant for processing of metal components previously occupied the position of Vice general manager at the company, which employs over 20 designers and researchers.

According to Mr. Shao, the Chinese model is replacing traditional wood products, particularly in the office furniture sector, where domestic demand for metal products has already reached 80% of the entire industry.

However, in Mr. Shao’s vision, growing domestic demand presents the greatest opportunities. In its own country, DIMI is specialized in manufacturing metal structures for offices, retail outlets and shopping malls. DIMI also furnishes retail outlets belonging to Sony and other international electronics corporations.

NEWEST GENERATION SYSTEMS FOR A HIGH-QUALITY PRODUCT
Mr. Shao brought the DIMI project to fruition by defining his objectives, opening a manufacturing plant, expanding the market through his administration, and searching for and purchasing machinery. With regard to the latter, it should be mentioned that the company assumes investments in newest-generation systems of European and Japanese make. In contrast to sheet cutting, laser pipe cutting was a technology nearly unknown in China until recently. Mr. Shao learned of these systems when visiting his own clients in Japan, who were using Lasertube technology from ADIGE. Mr. Shao invested in our product, and today, he is satisfied with and proud of his choice. “As one of the first players operating in the Chinese furniture market that had applied laser pipe cutting, DIMI was able to predict market trends, establish itself as a leader in the sector, and be the first to gain a share in a new, now consolidated, market. The introduction of the LT FIBER system allowed us to distinguish ourselves from the competition, which used traditional methods, and to reap the benefits of this competitive investment earlier.”

Laser for Flexibility
Cutting quality, tolerances, productivity and reliability were the deciding factors in the selection and purchase of the Lasertube system. “After the first stage of searching and selection, during which we visited different Japanese manufacturers and the Tube & Wire trade fair in Germany, we began negotiations with ADIGE and another European manufacturer. ADIGE was selected because the LT FIBER machine was perfectly suited to the requirements of the furniture sector, particularly to our plant’s need for an extremely flexible machine. Characterized by a low transition time between one process and the next, and due to the wide range of different products to be manufactured, the LT FIBER model seemed to be more safe and reliable compared to the analogous model from the competition.”

“above all, the absence of a need for tools meant immediate savings of time and the cost of research, production and testing of tools. Automatic loading and unloading systems, with four unloading stations, make it possible to reduce production and labor costs. Moreover, the performance of one work cycle instead of cutting, grooving, drilling, cleaning, allowed us to optimize work times.”

Thanks to the precision and cleanliness of cutting performed by the LT FIBER machine, we not only reduced unit production costs but also achieved a quality significantly exceeding that of the competition’s products.

But DIMI is not just a workshop that carries out projects on order, we have also developed a creative department in our company, which employs over 20 designers and researchers.

“From this perspective, ADIGE’s software (Artube) makes the job easier for designers by allowing them not only to import prepared drawings, but also to edit them or create new projects quickly and intuitively.”

Today, Shanghai DIMI employs 120 workers (besides the 520 at Shanghai Vision). This number has doubled in just three years, with average growth of annual revenue amounting to 50%. Mr. Shao is planning another increase of production. “The Lasertube is currently working three shifts, seven days a week. At this rate new investments will soon be necessary. ADIGE is undoubtedly our first choice.”

(TLT FIBER has been available on the market since 2007. It is the first laser pipe cutting machine with a fiber optic source.)

Thanks to this, we are able to offer clients innovative and personalized solutions, which lets us stand out from the competition even more.
LCM is a family-owned company specializing in manufacturing copper and aluminum pipe components for different sectors as a subcontractor. Mr. Ivo Carloni, the founder, and his wife are the owners of the enterprise. But the company’s rudder is already in the hands of the next generation, consisting of the owners’ three children: Ambra, who handles the administrative end of orders and deliveries; Eliseo, who manages the production department; and Andrea, who manages sales.

“The company was founded as a craftsman’s enterprise in 1972. In 1985, a nearby company that decided to subcontract manufacturing of heat exchangers with us equipped us with the machinery and materials to perform such work. Since then, we began to learn the trade of processing metal pipe and became real experts”, explains Andrea Carloni. “When manufacturing of the heat exchangers ended, LCM was already fully specialized in pipe processing and manufactured elements for various sectors”. Today, LCM employs 25 workers split between the new plant, with an area of 2,600 square meters where all pipe production takes place, and the original plant with an area of about 1,500 square meters where press dies and tools for supporting main production are manufactured”.

LCM is certainly the first market for LCM, but the number of international clients is leading the company to develop export activity.

“We regularly supply over 80 clients from different sectors: heating, air conditioning, beverages, water treatment and automation. We manufacture spirals, serpentines, collectors, practically anything you can get from pipe; and our parts can be found in coffee machines, furnaces, air conditioners and refrigerators sold around the world”, Carloni states. Diversification of the sectors it supplies has allowed the company to limit the production stagnation effect, making continuity possible. But there isn’t just the Italian market.

“We mainly work on copper and aluminum pipes with diameters from 4 mm to 54 mm, and with different thicknesses. Manufacturing is continuous, including Sundays, and the reliability of the machine park at LCM is essential. In these terms, the BLM GROUP gave us a guarantee. I don’t trust words, but I look at the numbers. For me, the PLAUNO machine of 1995, which remains operational after having worked sixty thousand hours and is still used today, at production peaks, is an example of reliability”.
Lcm is a relatively small company, but it operates like a modern organization with very clear goals. "The target we are striving to reach is zero rejects, which will make it possible to limit costs, and is a significant factor in the company's profits. This is why it would be good to introduce an additional stage to the production process, increasing its reliability and making it possible to avoid rejects and standstills. The entire process is currently being optimized, not just one stage". The subject of quality control is the most important and is being managed by a young but experienced unit. Controls are usually conducted over the course of the entire production cycle, and there have been results. "Today, thanks to quality, we are maintaining a level below 100 ppm (less than 100 rejects per million), and this value is confirmed by our customers' satisfaction. Defects are unacceptable."

A philosophy much appreciated by the clients. Part of the competition is focused on high numbers, but not Lcm. "Our lots consist of anywhere from 50 to 20,000 pieces, and we still have clients that have been working with us since 1985. We stayed by their side during hard times, which made it possible to create an important relationship of cooperation. Besides customer satisfaction and many other methods of studying recipients' satisfaction, the fact that we have not lost a single client is also not without significance", concludes a pleased Carloni. Lcm often caters to the needs of clients, serving with advice on industrial details that yield savings.

Cost control is a central theme. "When you manufacture thousands of elements a day, not just the processing stage is important, but the entire production process, from ordering materials to delivery of goods. Everything must be optimized. All operations ordered from the outside must be coordinated with internal production. The client pays for processing, not for order input or handling and planning". The simplicity of programming the 4-RUNNER machine is also appreciated for this reason. "At the workshop, we knew the VGP3D programming system from BLM well, but today, even a new guy who trained only on a 4-RUNNER machine is able to program elements. The stage of mounting equipment also seems to be simple and easy", Carloni adds.

"There are no standstills in the machine's work", explains Carloni. 4-RUNNER, a machine bought for a specific task, is the latest addition. "We purchased a 4-RUNNER machine for precise pipe forming. In the past we used an old PLANET machine from BLM, but it had hydraulic axes and the final forming stage did not have the required reliability, so it was performed on the TUBE-FORM machine."

Electrical axes offer benefits in the form of greater precision, thanks to which, work can be performed completely on the 4-RUNNER machine in one stage.

ZERO REJECTS TO LIMIT COSTS

Lcm is a relatively small company, but it operates like a modern organization with very clear goals. "The target we are striving to reach is zero rejects, which will make it possible to limit costs, and is a significant factor in the company's profits. This is why it would be good to introduce an additional stage to the production process, increasing its reliability and making it possible to avoid rejects and standstills. The entire process is currently being optimized, not just one stage". The subject of quality control is the most important and is being managed by a young but experienced unit. Controls are usually conducted over the course of the entire production cycle, and there have been results. "Today, thanks to quality, we are maintaining a level below 100 ppm (less than 100 rejects per million), and this value is confirmed by our customers' satisfaction. Defects are unacceptable."

A philosophy much appreciated by the clients. Part of the competition is focused on high numbers, but not Lcm. "Our lots consist of anywhere from 50 to 20,000 pieces, and we still have clients that have been working with us since 1985. We stayed by their side during hard times, which made it possible to create an important relationship of cooperation. Besides customer satisfaction and many other methods of studying recipients' satisfaction, the fact that we have not lost a single client is also not without significance", concludes a pleased Carloni. Lcm often caters to the needs of clients, serving with advice on industrial details that yield savings. Cost control is a central theme. "When you manufacture thousands of elements a day, not just the processing stage is important, but the entire production process, from ordering materials to delivery of goods. Everything must be optimized. All operations ordered from the outside must be coordinated with internal production. The client pays for processing, not for order input or handling and planning". The simplicity of programming the 4-RUNNER machine is also appreciated for this reason. "At the workshop, we knew the VGP3D programming system from BLM well, but today, even a new guy who trained only on a 4-RUNNER machine is able to program elements. The stage of mounting equipment also seems to be simple and easy", Carloni adds.

"There are no standstills in the machine's work", explains Carloni. 4-RUNNER, a machine bought for a specific task, is the latest addition. "We purchased a 4-RUNNER machine for precise pipe forming. In the past we used an old PLANET machine from BLM, but it had hydraulic axes and the final forming stage did not have the required reliability, so it was performed on the TUBE-FORM machine."

Electrical axes offer benefits in the form of greater precision, thanks to which, work can be performed completely on the 4-RUNNER machine in one stage.

SHAREING THE COMPANY'S KNOWLEDGE

"We operate on the basis of procedures, so it is necessary to share knowledge that could otherwise be forgotten inside the company. Procedures are our way of sharing knowledge from unit to company. Everyone is useful and nobody is indispensable at the company, and so it must be. This is why it is very important to collect and manage information well. The company is not made of words, but of numbers", says Carloni referring to the amount of data present at the company that can be used to optimize decisions in real-time. Process automation allows access to a large amount of data, which, if well managed and processed, can be used in real-time to make the right decisions.

Andrea Carloni says he would rather act than talk, which doesn’t surprise us, considering the results of his company. It was a pleasure for us to hear his stories, since they all contained his real and honest passion for the work he was taught from his childhood years. "The culture of work for which this region is known was instilled into us as children", he explains with conviction. Carloni continues, "At just 14-15 years of age, I spent my summer vacation at a factory, gaining the technical knowledge and experience that lets me manage the company today". And considering his words, we really can say that this is one of the pillars of Lcm’s success.
Motorcycle aficionados, particularly at the motor sports level, the name Akrapovič needs no introduction. For non-afficionados, it is a Slovenian company leading in the manufacture of exhaust systems for motorcycles and for supplying the largest brands that participate in motorcycle races around the world. To perform certain laser cutting operations on its own products, the Akrapovič company has recently begun using the LT-FREE system from BLM GROUP, and for this reason, we visited them at their headquarters in Ivačna Gorica, several kilometers from Ljubljana.
This year, the company is completing its 25th year of activity, as we learned from the current CEO, Mr. Uroš Rosa, who told us about its beginnings. “25-30 years ago, motorcycle exhaust systems were rather primitive and gave no advantage in terms of performance or riding, which cannot be said of today’s products. At that time, Igor Akrapovič, the company’s founder, was a motorcycle rider who participated in national and international races. As he tuned his motorcycle, he became interested in the exhaust system, for which he invented and implemented several solutions to improve the machine’s performance. These solutions were good enough that Igor began selling exhaust systems in former Yugoslavia”. And so the company was formed. Today it is a global leader in the sector, employing 900 people in two plants, several kilometers distant from one another. The plant that we visited, the company’s former headquarters, contains a research and development department, laboratories, a foundry, an administrative department, a race department and a small prototype production unit. Carbon fiber components and parts, exhaust systems, and the warehouse are found at the second plant, with an area of approx. 25,000 sq. meters.

The real turning point for the company was in 1997, when Kawasaki implemented an Akrapovič exhaust system on a “superbike” that took part in Germany’s national championship. Since that time, the brand has taken a high position in the market, and other companies started to install Akrapovič exhaust systems, rapidly growing the company.

Today, looking through the list of Akrapovič’s clients is like reading the qualifiers at the world motorcycle championships. They are practically all of the most prestigious brands, which race in different motorcycle categories around the world, from Superbike, through MotoGP, to cross, such as Ducati, Yamaha, Kawasaki, Suzuki, Aprilia, and KTM. “In different cases, we deliver various systems and elements, such as basic exhaust systems and aftermarket accessories for on-road motorcycles. Starting in 2008, we also began to supply the car sector with the Porsche GT2 being the first, followed by some of the most prestigious brands and models, such as Audi, Bentley and Alfa Romeo. Today, 80% of production consists of motorcycle products and 20% consists of exhaust systems for cars. 99.5% of this is for export.”

SUPPLYING WELL-KNOWN BRANDS

![Motorcycle Race](image-url)
you don’t become a leader without innovation, and this is why the research & development department at akrapovič is so important. it was not created at the company’s original headquarters, next to the race department, where the metallurgical laboratory is also located, without reason. “the data on the alloys we use cannot be found in any textbook. they are the fruits of the labor of our research team and are the subject of continuous research and development, making up an important part of our know-how”. other titanium foundries produce 99% for military and medical applications. akrapovič’s is focused on their own production and some other non-military fields. since the needs of akrapovič are different from those of most companies, it has also become research & development and protection of know-how completely independent at the production level, both in order to achieve maximum flexibility in prototyping and development of new solutions, and to protect its know-how.

“by controlling the entire process, from the foundry to welding, we perform all manufacturing of such titanium elements as flanges, collectors and complicated parts. we also have at our disposal a line for manufacturing titanium pipes of a quality that we could not find in the market. from the perspective of our balance sheet, this is an expensive choice, however it provides us with greater flexibility and makes it possible to protect our know-how. laser technology is an important element of the entire process, making it possible to make the prototyping stage more flexible and keep manufacturing of critical elements within the company”. rosa continues, “for a long time we were thinking about applying a 3d laser system. we began by ordering 3d laser cutting externally, and we achieved a satisfactory level of quality. however our demand grew, and our dependence on the delivery times of the external supplier were no longer acceptable, so we decided to take the next step last year. we looked at the competition’s machines and noticed that your machine has a one-of-a-kind concept. other 3d machines were made for sheet processing, but this one was obviously made with pipe processing in mind. the capability of performing specific operations without the need to move the element is a very big advantage. we noticed this at our former supplier, who performed part of the processing on one machine only to move the processed element to other machines to finish the process”.

the lt-free system was created in order to process three-dimensional elements in one pass, without the need to perform tedious relocations, and this is an advantage that akrapovič appreciates very much. “we have many different parts with small production sizes, so the processing speed of the lt-free system is very good to have. manipulation is not time-consuming thanks to the robotic arm holding the element and the two moving bases that allow the machine to process successive elements continuously. if everything is prepared properly, production is carried out very quickly, with no standstills”, rosa adds.

product quality, research and development, flexibility, organization and passion are the traits that have allowed akrapovič to develop and achieve success in a sector that is definitely not among the easy ones, and where there is much competition. at the blm group, we are strong supporters of all of these principles, which constitutes an excellent point of reference for all future success.
The LT-FREE 5-axis laser cutting system is suitable for processing bent pipes, hydro-formed pipes, pre-assembled pipes, as well as flat and pressed sheets. Every production requirement has its own unique configuration making it possible to ensure a 24 hour, uninterrupted work cycle, with automatic loading and unloading operations. The system is perfect for processing all three-dimensional elements.
EXPERIENCE

Ask the people at Hill-Rom how they got to be a world leader in medical equipment manufacturing, with 10,000 employees in several facilities around the globe, and they will likely answer you in a few key words: quality, innovation and a commitment to enhancing outcomes for patients and caregivers.

“Fortunately we’ve found it in BLM GROUP USA”, says Steve Mathes. Mathes is Director of Operations at Hill-Rom’s Batesville, Indiana manufacturing facility. In addition to medical architectural products, the plant supplies hospitals and care facilities around the world with hi-tech beds designed with the needs of both patients and caregivers in mind, making over 30,000 beds per year. Hill-Rom Batesville and BLM GROUP USA have a long history of working together. “We established a relationship with BLM GROUP USA in 2003 when we bought an LT652 CO2 Lasertube, followed by a LT702 CO2 Lasertube in 2004.”

"We look for that same degree of dedication in our supplier partners," says Steve Mathes. “Fortunately we’ve found it in BLM GROUP USA”. Mathes is Director of Operations at Hill-Rom’s Batesville, Indiana manufacturing facility. In addition to medical architectural products, the plant supplies hospitals and care facilities around the world with hi-tech beds designed with the needs of both patients and caregivers in mind, making over 30,000 beds per year. Hill-Rom Batesville and BLM GROUP USA have a long history of working together. “We established a relationship with BLM GROUP USA in 2003 when we bought an LT652 CO2 Lasertube, followed by a LT702 CO2 Lasertube in 2004.”

MAKING A PATIENT’S LIFE A BIT MORE COMFORTABLE

HILL-ROM
The Lt fiber laser is now on the Hill-Rom floor and should be making production parts shortly. It will have a decided difference compared to the other conventional production systems it replaces. As a result, Hill-Rom will reduce part count, production time and cost. "The speed of manufacturing with the Lt fiber lets us bring robust new designs to market faster," observes Eagan.

"When our New Product Division staff come up with new design ideas that they want to investigate we can now use the laser to produce rapid prototypes for them. This allows them to quickly check out their concepts and see if they meet our customers' needs and our business objectives."

Hill-Rom's drive for innovation and process improvement didn't stop there. It couldn't. "We often speak of the voice of the customer," says Mathes. "and the importance of listening to that voice. One of the loudest of those voices belongs to the hospital administrators and they put a high priority on quality and controlling costs. "Ours is a highly competitive industry," added Mathes. "We need to continue to improve our operation if we hope to keep costs in check and stay ahead of competitive pressures."

"Cost pressures driven by consolidations in the healthcare industry continue to increase, as does the ongoing need for innovative solutions that deliver superior performance and outcomes," says Mathes. "Laser technology has played a key role for us in terms of both cost and innovation. This thought process has led us to investigate fiber laser technology for tube cutting."

Hill-Rom was aware of the potential of fiber technology because they already employed a fiber laser in sheet metal processing. Tube cutting, however, was another story, and for insight into this process they turned to their partners at BLM Group USA. After investigating the available offerings, it was determined that BLM’s new LT FIBER fit Hill-Rom's present and projected future needs. The LT FIBER system is specifically designed and developed for cutting tubes of any section with the fiber laser source. It offers significant advantages in terms of a wider range of materials that can be processed, and a considerable productivity increase is obtained based on the material’s thickness.

"We were impressed by the system’s software as well," recalls Ray Werner, Hill-Rom Manufacturing Technician. "BLM Group USA's programming software, a three dimensional parametric Artube CAD/CAM package, is specifically designed for tube applications. "Our people have found it relatively simple to use, even for novices". He also appreciates the fact that it enables automatic and programmable setup, tube and bar management, and rapid changeover as well.

"These features are real time savers," he remarks. Hill-Rom personnel were equally impressed by the overall system. "We felt that this machine was best in class," says Mathes. But they wanted more. As Mathes explains, "What we want from our suppliers is performance and support, and also an understanding of our needs. For instance, we didn’t want to rely on estimated cutting speeds, we wanted accurate numbers for our planning.

So a team of people went to BLM GROUP USA’s headquarters in Wixom, Michigan, and worked with us and a similar machine on actual parts so we could make intelligent estimates". This is a key and often overlooked benefit of laser processing. With traditional processing methods the time and cost required to perform an operation can vary depending on a number of factors, including the machine operator’s skill level. With laser processing the time and cost required to produce the part can be tallied in advance. These numbers remain the same whether you produce one of these parts or a hundred. This degree of certainty about cost and quality eases planning and constitutes a business advantage for laser users.

MULTIPLE ADVANTAGES

The LT FIBER laser is now on the Hill-Rom floor and should be making production parts shortly. It will have a decided difference compared to the other conventional production systems it replaces.

"There are designs that we would not be able to achieve without this machine, which allows us the flexibility to bring these designs to life," notes Kevin Eagan, Hill-Rom Manufacturing Engineer.

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As a result, Hill-Rom will reduce part count, production time and cost. "The speed of manufacturing with the LT FIBER lets us bring robust new designs to market faster," observes Eagan.

"When our New Product Division staff come up with new design ideas that they want to investigate we can now use the laser to produce rapid prototypes for them. This allows them to quickly check out their concepts and see if they meet our customers’ needs and our business objectives."
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