

Express

Magazine for Sheet Metal Processing

Unique

Laser Center has built an automated manufacturing operation in Korea

Threefold

M-U-T devised the right combination and now pursues flexible manufacturing

Multiplication

Günter Peters turned one worker into one hundred

INDUSTRY

4.0

TRUMPF helps shape tomorrow's manufacturing environment

Achievement

Christel Schreiber knew early on what she wanted — to work with sheet metal. She has reached her goal. Today she manages the company her father founded



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Like father,
like daughters

Christel Schreiber decided to pursue her dream career. She became a master metalworker and today heads up the MKS job shop.

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RECIPE FOR SUCCESS? PEOPLE FOR SUCCESS!

A high export ratio, renowned companies on the customer list, stability in difficult times. When you read the success stories of so many job shops specializing in sheet metal, then you wonder about their recipe for success. What makes for good company management? What can we learn from the best of the best? Some answers are close at hand. If you want to play in the top league, then you need a highly motivated staff with superb skills. No less important is a “captain” who plans for the future with great care, caution and occasionally a proper dose of daring. Step by step, but always moving forward — never wavering, never hesitating. The human being is and continues to be the measure of all things in the business world. Even though an industrial revolution appears to be just over the horizon with “Industry 4.0”, there is no substitute for the staff’s intelligence and intuition — either now or in the future.

People who take the initiative, who master complex processes and machines, and who spark customer enthusiasm are found in the job shops we want to introduce in this issue of TRUMPF Express. The diversity of the lead characters in these stories is no less than the success formulae followed by the customers we have chosen to present. In one instance, slender processes are the key — just like SYNCHRO at TRUMPF. In another case, cooperating with the customer to create a complete supply chain was critical. The third company described in this issue puts its faith in complex assemblies and a wide-ranging spectrum of capabilities and services. In each of these examples, thoroughly modern machinery lays the foundation and makes an essential contribution to business success. Common to all these firms is a generous portion of pioneering spirit and creativity, paired with an unwavering focus on the customer. These are the bases for ongoing success in working sheet metal.



Mathias Kammüller

Mathias Kammüller, Dr. Eng.
Head of the TRUMPF
Machine Tool Division

All across Europe, the expenditures for research and development represent two percent of Europe's gross domestic product.

Nearly 26 percent of all patent applications submitted to the European Patent Office in the field of mechanical engineering originate in Germany.



The German mechanical engineering industry spent almost 5.1 billion euros for research and development in 2012.

Of all German employees who are engaged in research and development work for private enterprise, about 12 percent are in the field of mechanical engineering.



Ralf Macht launched his own business ten years ago. Today he employs a staff of 40 and puts his faith in machines built by TRUMPF.

Established partner

For ten years now, "M8" has been a specialist for thin sheet metal

There was every reason to celebrate this year at M8 Blechbearbeitung in the Hessian town of Babenhausen. This job shop, with its crew of 40, uses 1,800 square meters of floor space to process thin sheet metal, in the main. Used here are laser and combination machines, punching machines and press brakes made by TRUMPF. Matching the gauges usually processed, the equipment includes two highly efficient solid-state laser machines — the TruLaser 5030 fiber and a TruMatic 3000 fiber. The success story at M8 Blechbearbeitung started out quite modestly ten years ago — a shop with a punching machine, a press brake, a deburring machine, and a

staff of five. In the ensuing years, the shop established a reputation as a supplier to mechanical engineering companies, hired new employees, and expanded its space first by relocating to new premises and then by building additions. "Following the growth in recent years, we have now achieved a size that we feel is ideal for our tasks," explains Ralf Macht, the owner at M8. We want to hold to this number of employees so that our operations are as straightforward as possible while at the same time producing high quality in two-shift operations."

> **Additional information:** www.m8-blechbearbeitung.de



Alpine crown

Mountaintop restaurant with a sheet metal façade

The Scherrer Metec AG, located in Zurich, has created a special eye-catcher at an altitude of 2,653 meters on the Weisshorn Peak — a restaurant at the summit, clad in 4,500 aluminum shingles. Along with the visual effect, the structure had to satisfy one special requirement: extreme stability. To learn how the Scherrer company mastered this challenge and to see what this fascinating building looks like, please visit www.mastersofsheetmetal.com/scherrer

Masters of Sheet Metal

Practical and attractive at the same time. The wine cabinet is one result of the project at the Mainz University of Applied Sciences.



Using detailed models, the budding interior designers experiment to see how sheet metal can best be shaped.



Multi-talented partition

Students at the University in Mainz design a functional room divider

The primary function of a wall is to separate areas. In a project at the university in Mainz, Germany, students proved that partitions can do much more. They integrated a wine rack, a couch and other creative elements into room dividers made of sheet metal. At the start of the project Thomas Bronnhuber, workshop advisor for sheet metal design at TRUMPF, introduced the students to the sequences involved in processing sheet metal. Thus the up-and-coming interior designers learned about the material's capabilities before they began working on detailed drafts. "Sheet metal can easily be processed, even in small production runs," explained guest

professor and seminar chairman Henk Kosche. "In addition, designs can readily be adapted to suit various applications. All that makes sheet metal an excellent material for architectural work." Thomas Bronnhuber is enthusiastic about the project's results: "The students came up with truly phenomenal ideas." Some of the designs are being turned into prototypes by Erco GmbH, a specialist for architectural illumination, in Lüdenscheid, Germany. It uses a TruBend 5085 and a TruMatic 6000 to do so.

> **Additional information:** www.digilogs.de



2 QUESTIONS

Dr. Jutta Rump, Professor for General Business Management, with a focus on international personnel management and organizational development, at the University of Ludwigshafen.

> What makes a good boss?

A good boss will pay attention to the motivation, the qualifications, and the health and wellbeing of his subordinates and will do everything possible to promote them. He or she is the one who, usually based on daily contact and close to practice, has the best overview of individual performance, expertise and the means that can be employed to motivate. That is why a good boss, depending on the situation, will have to master and employ differing management styles. One is more transactional, another focuses on steering targets, tasks and processes, while a transformational approach puts leadership, inspiration and development in the foreground.

> Is it possible to learn leadership?

The finest expert, one who wishes to climb the career ladder, is not of necessity a good manager. That practice, often used today, deserves reconsideration, since some people are less capable of managing or leading others. In spite of this, there is no denying that certain management techniques can be learned and that sensitization of managers can contribute to considerable changes in awareness and behavior.

> **Additional information:** jutta.rump@ibe-ludwigshafen.de



Deep trapezoidal sheet or narrow radii? Three different attachments turn the Series 200 nibblers into true all-rounders.

Three utensils

The new TRUMPF nibblers can easily be converted to handle a variety of uses

Small, handy and rugged — these properties make the TRUMPF nibblers so popular among users. They can separate mild steel, up to two millimeters thick, free of burrs and without marring the surface. Three new nibblers in the 200 Series now offer even greater flexibility. The user can easily reconfigure them as needed.

When making the initial purchase, the buyer chooses the nibbler that most closely fulfills the primary needs. The TruTool PN 200 and the TruTool PN 201 are especially suitable for trapezoidal sheet, while the TruTool N 200 is especially maneuverable. Thanks to ongoing development work, the customer can equip each of the three nibblers for other applications — and can do so economically and without need for special tools. Here it is irrelevant which tool was purchased originally. This provides additional utility for the owner, as Michael Keilbach, head of sales and marketing at TRUMPF Power Tools Germany, emphasizes. “Our customers often have to cut not only sheet metal with deep trapezoidal cross-sections, but also flat sheet, executing tight radii. To accomplish this, they now need only one TruTool nibbler and the appropriate attachments.”

> **Additional information:** www.trumpf-powertools.com/new-products

3 VOICES

How important are your employees for the success of your company?



To Van Nghiep
HISA

“Employees drive a successful company. We motivate them with attractive terms of employment and provide them with professional training. We can produce high-quality products only if our team can operate the machines correctly.”



Brenna Fairchild
Engineered
Mechanical Systems

“You must invest in the technology but also have good, well-trained people. Many of our long-term employees, especially, have been cross-trained. And, as the company grows, they become increasingly more valuable.”



Masakatsu Matsuo
Marujyu Co., Ltd.

“Our workers contribute both craftsmanship and creativity. We always take pains to enhance our workers’ capabilities and improve our technology base. We see these as inseparable in a great, overriding system.”

It's all corners and angles

Prize-winning aluminum chair created on TRUMPF machines

“Form follows function” is the concept behind the so-called Edge Chair, designed by the Czech Novague architectural office and made from aluminum. The design for this stackable chair is based on the Japanese origami philosophy, which says that every surface has a function and that the interplay of the surfaces results in a functional whole. A Czech company, SC Metal s.r.o., manufactures this seating. A TruLaser 3030 with a 6-kilowatt laser first cuts the pattern from an aluminum panel, three millimeters thick, before a TruBend 5230

puts the material “into shape”. Finally, the chair is welded by hand and then powder coated. Thus this seating glows in friendly colors — regardless of whether indoors or outdoors. The simple, modern and enduring appearance impressed the RedDot Award jury, which awarded its coveted design prize for the chair. The reasoning: The Edge Chair is convincing because of its “independent design vernacular” as well as its “well thought out ergonomic functionality”.



reddot design award

> Additional information:

www.scmetal.cz, www.edge.novague.com



From the model to the final product: The pupils develop and manufacture their own projects.



Youthful businesswomen

Pupils bring project to reality in their own engineering office

It's an engineering office where 13 ninth-grade girls run the show. As odd as this might sound, TRUMPF has made that possible in the “Tec Girls' Engineering Office”, in the framework of an educational partnership with the middle school in Gerlingen, Germany. The pupils worked on their own project for a full half year. They planned and created a fountain in the shape of a flower and wind chimes in the form of a mushroom. One afternoon a week, the girls work out all the technical and commercial challenges associated with the project, and they do all this on their own. Since

September 2012, several outside advisors have staged workshops to give the young people the problem-solving basics they need. Ten afternoons are spent at TRUMPF in Ditzingen. There, the pupils gain new insights into project management, product marketing, and the fundamentals of sheet metal processing. Armed with this background knowledge, the “Tec Girls' Engineering Office” then executes the entire order, from planning and prototyping to completion. The project is a part of the efforts pursued by TRUMPF to get more female apprentices interested in technical careers.

Christel Schreiber serves as captain of this family company. Her sisters Karin Künstner, Petra Laukenmann and Andrea Einsele are also on board.



"As a woman
I have always
had to do
just a little bit
more to earn
acceptance."



KD Busch

Like father, like daughters

Christel Schreiber is part of the second generation to head up MKS Metallbau Schreiber GmbH and can depend on triple backing — her sisters also work in the business.

Christel Schreiber proudly presents the manufacturing operations at MKS Metallbau Schreiber GmbH in Wolfschlugen, Germany. There she points out two TruBend press brakes and a TRUMPF laser cutting machine. “We have virtually no limitations in regard to sheet metal gauge and manufacturing techniques,” the general manager explains. “It’s just this simple: We make what our customers order!” This family firm with its 60 employees specializes in complex assembly groups destined for construction machinery, mechanical engineering and the railroads. Large orders can’t scare off MKS. Parts for concrete pumps, fan wheels for the railways, and components for rolling stock used in emergencies can be seen in the shop. And when Christel Schreiber talks about

the challenges she and her coworkers have already solved, then you can sense the passion she feels for her work. It seems to be a family trait. Her three sisters also contribute to the company's success: Karin Künstner, Petra Laukenmann and Andrea Einsele manage the firm's commercial affairs.

Truly a family business

Only a few people reckoned on this degree of womanpower in 1969. When Karl Schreiber opened his own job shop, he was already the father of three daughters and his peers greeted the project with skepticism. What was to happen to a family business with three girls growing up to take the reins? Among his acquaintances, some counted on future sons-in-law to preserve the company. And even though two sisters' husbands do work in the firm, things turned out differently than expected. One fine Sunday morning at breakfast, the youthful Christel announced to her family that she wanted to learn the metal processing trade. That began her career at MKS. Having completed her apprenticeship, she worked in manufacturing for several years before she launched into her education as a qualified machinery technician. One by one, her sisters joined the company on the commercial side.

Beginning in 2004, Christel Schreiber joined her father in company management. In 2012 she took over the helm as general manager. She used the transitional period to grow into her new role. "And so that the customers could get used to dealing with a woman," she explains with a laugh. "Especially as a young woman, I often had to achieve more than my male colleagues in order to be accepted. Even today, customers on the phone ask me to transfer the call, since they have a technical question." But she quickly dispels any doubts. Especially technical challenges spark her enthusiasm. Then she sits down with her employees and seeks solutions. She appreciates her workers' tremendous dedication. Since Schreiber worked with many of them on the shop floor, her management style is friendly and cordial. "That comes naturally enough when you've known the people in production for such a long time. And that is something that distinguishes our firm — the employees are part of our 'extended family'."

Flexibility and diversity

Continuity is very important to Christel Schreiber. That is why, after taking over the firm, she did not make any significant changes but consistently follows the same time-tested strategy. Flexibility and quality continue to make their mark on the company strategy. "Over the past years we have invested in a variety of technologies." When making any new purchases, she always considers what the market is calling for. "We have to keep up with the state of the art and that is one reason why we are always ready to buy new equipment. If a new technology promises to respond more readily to customer needs, then we invest. That is essential for our survival as a subcontractor. Because — as they say — standing still is tantamount to falling behind."

This job shop's capacity is broad and includes laser cutting, bending, milling, manual and robot welding, painting, and powder coating. Here certified quality is a necessity — and customer expectations are always on the rise. Certification as per ISO 9001 goes without saying at MKS.



Flexibility and quality are the touchstones of the company's strategy. That is why Christel Schreiber invests continuously.

"I have known many people in production for a long time. The workers are part of our 'extended family.'"





The people who expected the daughters to operate the company were few and far between.

MKS delivers complex assembly groups to the construction and railroad supply industries.

To be able to manufacture unusual orders, as well, this family firm has also achieved numerous other qualifications. Consequently, MKS is certified, holding the top CL1 classification, to manufacture components for the railways. It also holds HP0 approval for the manufacture of components used in pressurized equipment.

Investment in the future

MKS puts its faith in machinery built by TRUMPF whenever it's a question of laser cutting and bending. "We have worked with TRUMPF machines for twenty years. I actually learned my trade working at one, and the quality is always perfect," Christel Schreiber reports. That is why her manufacturing operations make use of a TruLaser 3030, a TruBend 5230 and a TruBend 5085. This subcontractor uses the laser cutting machine to work not only mild steel and aluminum, but stainless steel, as well. Depending on the materials being handled, gauges range from one to 25 millimeters. This highly flexible machine perfectly matches the broad manufacturing range pursued by MKS. The quality of the parts and the precision of the cuts impress Christel Schreiber and her customers to the same degree. And the general manager also appreciates the good technical service. "Should we ever need assistance, the TRUMPF support staff is always quick to respond."

A Stopa storage system efficiently supplies material to the machines. Since the customers place high priority on precise documentation of all the materials used, MKS even stores sheet metal of the same type segregated according to production batches, so that the provenance of the material can be positively tracked. But the storage system, expanded in 2012, might soon become insufficient again, as Schreiber reports. "We are pushing the capacity limits once more." It's a good thing that there is space available to build an addition to the storeroom. □

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Flexible family firm

Who: MKS Metallbau Schreiber GmbH, Wolfschlugen, Germany. Founded in 1969, 60 employees. www.metallbau-schreiber.de

What: This subcontractor offers a broad spectrum of services and manufactures complex assembly groups for construction machinery, mechanical engineering and the railways

How: TruLaser 3030, TruBend 5230 and TruBend 5085



A solid stance is important to Achim Dittich. He achieves this with the high quality of his parts. To ensure this, he separates the operations where stainless steel and mild steel are processed.

“Our firm has a broad stance”

B+D Laserworking demonstrates how healthy growth works. General manager Achim Dittrich tells us about the strategy behind that growth and about his visions for the future.

Constant growth brings about opportunities. But it also harbors risks. How do you deal with that?

The risks can be mastered, even in a turbulent market environment, by finely tuned risk management. Right in the early years of our company's history, we adopted the premise that the largest customer was to account for a maximum of 15 percent of total sales. Whenever a single client contributes more than that share, then it is time to grow. And grow we did: from 350 square meters and five employees in 1991 to the current 9,900 square meters of production floor space and a staff of 220.

How can job shops distinguish themselves from the competition? B+D has been very successful at that...

The most important decision was the one to realign the company. Following the founding of the firm as a laser cutting operation, we expanded by adding welding and bending work. Today, delivering completed assemblies is in the foreground. We begin assisting our customers in the engineering phase. We then continue, not only to materials scheduling, but also to supplying complete groups. This is also reflected in our motto: “So that ideas become products”.

Does a broad customer structure make for healthy growth?

I'd say so. We serve 220 customers, but about 50 to 60 clients account for the majority of sales. We are also broadly based as regards products and industries. The range starts with large forklift trucks and construction machinery and continues on to delicate components used in medical technology.

Continuity is of prime importance to us. We strive to make products that are called for repeatedly instead of one-off jobs. The parts vary widely in terms of their complexity and we

manufacture more than 12,000 unique products each year. These could be simple brackets or even complete hydraulic tanks for wheeled loaders or preassembled housings for laboratory technology. In regard to pure laser cutting operations, we turn out up to 700,000 items a year. That is a very important part of our business, but not our mainstay.

How is this variety in the parts reflected in your technological orientation?

We cut blanks in a very classic fashion with the laser beam and always use TruLaser machines for this purpose. That is followed by straightening and then bending using TRUMPF press brakes in a number of different sizes. To achieve greater flexibility and smaller batch sizes, we have quite consciously decided on a modest automation level. The subsequent welding operations are carried out manually by 75 tested and licensed welders. Long production runs are turned out in parallel by three robots located at a manufacturing island.

What challenges are you confronted with at present?

We are working on making the procedures within the organization better and more transparent. Expanding our production floor space by 50 percent while adding new machines and 60 new employees in the past two years has made that necessary. The topic of lean management is of great significance. Thanks to the “b+d way”, worked out together with our staff, and our “SystOp” production optimization

system, we are infusing the entire company with the idea of lean management.

Do you underscore your quality claim with the physical isolation of the areas where stainless steel and mild steel are processed?

That's right. We process construction steel in a separate shop. All the way from storing the material to shipping it to the customer, we are absolutely accurate in segregating these types and produce on separate machines in order to prevent contamination. You will never find a “black” component in the shop devoted to stainless steel and aluminum.

This is one way in which we satisfy the stringent expectations of the medical and foods industries.

What does that mean for your investment strategy?

It is important that we use modern machine tools built by TRUMPF, and that includes both the CO₂ models and those with solid-state lasers. Owing to the high degree of machine utilization and since we strive to always use the latest technology — in order to achieve an edge in productivity, we replace all our machines after four to five years. Just as we do with our customers, we attempt to achieve long-term relationships with our own suppliers, based on mutual trust. For that very reason, only TRUMPF can be considered as a systems supplier. That is why we fully rely on innovative technologies devised by TRUMPF whenever we replace machines or buy new ones. There the entire package is true to the mark — technology, service and financing concepts.

“Lean management is of central importance to us.”



At B+D, modern machines from TRUMPF ensure high-quality parts and now that also includes laser welding.

That is why, at the close of 2012, we also invested in a TruMark laser. We use this machine to mark components and apply customer logos to them. That's true not only for sheet metal. Ceramics can also be readily processed with the laser. In regard to laser welding, we put our full faith in the TruLaser Robot 5020 — once again a product made by TRUMPF.

Many people shy away from making the entry into laser welding...

We were encouraged by the requests put forth by customers — and of course by our own interest in new technologies. When making the change to robot-assisted laser welding, the construction of jigs is important. Working with TRUMPF, we staged a workshop event right here on our own premises. There, customers received information about the possibilities the technology offers. We are already envisioning products that we will be able to weld with the laser in the future.

So this means that — as a job shop — you are taking on an ever wider range of services. Are there any other fields where this is the case?

Logistics — warehousing and shipping — have indeed become important pillars of the business. Our customers find themselves faced with severely fluctuating demand and small batch sizes. This naturally also has significant effects on upstream links in the supply chain, and that includes job shops. That is why we just commissioned our new logistics center with its 4,100 storage spaces. That gives us a competitive advantage. We can store products for our

customers and then dispatch them as needed. In combination with dynamic optimization for the minimum reserve level or reorder point, we can respond to our customers' needs even though the frequency of the calls varies.

This is complemented by our own delivery fleet. In this way, we can establish the most complex make-and-call delivery systems and set up uninterrupted supply chains. We also offer our customers a further service in the field of logistics by supporting them in the development of intelligent transportation equipment and when optimizing supply chains.

What do you see as the future for B+D?

Right now, we are undertaking efforts to expand our geographic throw. We concentrate on the German-speaking regions at present, along with a few customers in eastern Europe and the USA. We are also sending out feelers toward Scandinavia. Our first step there will be to establish a foothold in Denmark. We already have a local partner there.

So you have decided on a long-term strategy?

Our plans extend on to the fifth expansion phase, in 2025. We are striving for sales of 70 to 86 million euros and a staffing level between 650 and 750 employees. 45,000 square meters of property have been earmarked for expansion at the Garbsen site. A plan for succession is already in place. My son has joined the company and will continue and further develop the business. When he told me about his decision, I asked: "Why?" His answer was simple: "Because I want to assume social responsibility." That is a statement that you can build upon because, in my view, a sense of responsibility for society is one of entrepreneur's most important qualities. □

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A broad base for sure growth

- Who:** B+D Laserworking GmbH, Garbsen, Germany. Founded in 1991, 220 employees. www.laserworking.com
- What:** From the initial idea, on to processing, and concluding with the dispatch of laser-cut blanks and complete assembly groups to the customer's manufacturing line — this job shop takes responsibility for all the steps in the process
- How:** 5 x TruLaser 5030, TruLaser 5030 fiber, TruMatic 3000 fiber, TruLaser Robot 5020, TruBend 7036, 3 x TruBend 5230, TruBend 5170, TruBend 5085, TruBend 5050, TruMark Station 5000

“This is the fourth industrial revolution”

The future of industry will belong to the networked factory. But what advantages does “Industry 4.0” actually offer? And what role will people play in the future? Klaus Bauer, Head of System Development Fundamental Technology at TRUMPF, answers the most important questions.

Mr. Bauer, what should the term “Industry 4.0” suggest to us, and what are companies hoping to achieve with it?

The term describes the intelligent interlinkage of all the production systems. Industry 4.0 — also referred to as the fourth industrial revolution — will have a similar impact on production as did the first three industrial revolutions — mechanization, electrification, and computerization. It is essentially a question of making production more efficient, cost-favorable and flexible, and in that way to retain profitability. The goal is to produce a one-off item as easily as one in a mass production run.

Exactly what does an individualized manufacturing process look like?

The manufacture of the item to be produced can be influenced at any point in time. The internet also makes it possible for the ultimate customer to impose individual requirements almost in real time. The prerequisite here is that the production line be extremely flexible and that it can turn out a wide variety of products. The machines are largely self-configuring while information is stored not only centrally, but also at the product being manufactured. This could include data on the properties of the feedstock material, describing how it can be worked. In the case of a complex product, this might also include information about which machine has already worked the product and which processing steps are required before completion.

Which changes will Industry 4.0 bring about for the people who work on the production floor?

The workers will be very consciously integrated into the process. We need people in manufacturing since machinery — neither now nor in the future — can offer a substitute for their

intuition and intelligence. At the same time, we attach great importance not to having just experts in the plant. It is important to insulate the people on the line from the complexity of these new systems. That is a major challenge. As the systems in the background become ever more complex, then we have to improve the systems used for control and interaction. The human being is supposed to direct and organize, without having to master all the complexity involved.

In what way is TRUMPF getting involved in the research on Industry 4.0?

TRUMPF has, from the very beginning, been a member of the German Federal Government’s working circles on Industry 4.0 and, as well, is on the steering and executive committee for “Platform Industry 4.0”, organized by the VDMA, ZVEI and BITKOM. In this way, we can actively influence research work and the implementation of the results. In addition, we are a partner in the CyProS (cyberphysical production systems) project being conducted by the Federal Ministry of Education and Research. Among the things worked out here are the reference architecture for intelligent networking. In our own products, too, we are showing even today the directions that future developments might take. Examples are iPad apps with which production can be monitored from a remote point.

What will the implementation of Industry 4.0 look like in practice?

Industry 4.0 does not mean that we will be tearing down and rebuilding anew. Existing production systems will be upgraded a step at a time. The steps are more evolutionary in nature and only in retrospect will we see how many different things have changed. □



Klaus Bauer, Head of System Development Fundamental Technology at TRUMPF, is working on the new technologies needed for the factory of the future.

The slenderizer

Carefully considered decisions enjoy top priority for Kwak Yun Chon. One result is automated manufacturing that makes a big impression.

Once again, Kwak Yun Chon was absolutely right. In Siheung, 20 kilometers to the southeast of Seoul, he stands in his new plant and peers through a window overlooking the manufacturing hall. A satisfied smile flashes across his face. Everything is running exactly according to plan. Anyone who knows this Korean businessman will hardly be surprised, since all his decisions are carefully considered. And he also likes to think at large scale. This is evidenced by a Chicago branch, by an ERP system developed for his facility, and by automated manufacturing that is quite simply unique in Korea.

The outcome of his strategy is a flourishing company. Laser Center is one of Korea's top component manufacturers and processors of sheet metal. "I started out in steel trading," Kwak Yun Chon explains. "But the market no longer offered enough growth potential. In order to secure my company's future and continue to be competitive, I decided to transform the firm from a steel dealership to a job shop. And of course I wanted to





“Optimized processes and automated machinery were especially important to me as we planned our new plant.”

Efficient solutions: Machines with solid-state lasers populate the shop floor. To save space, the switchgear cabinets are mounted on overhead platforms.



“Our company’s philosophy is based on our principles. Among them are integrity and transparency.”

do it right. That is why I chose laser processing. I had already seen the huge demand for laser-cut parts.” This put behind him his days as a trader. That was in the year 2000.

A clear concept

His personal roadmap was accurate and his job shop set out on a growth course. Today Laser Center is supplying to customers — largely from the mechanical and systems engineering sectors — high-quality, laser-cut and bent parts made of mild steel and stainless steel sheet. One thing was important to him from the very outset: clear structures. “Our corporate philosophy is built on adhering to our principles. Every strategy incorporates those strict principles. We strive not to deviate from our internal regulations and specifications,” he points out. Among those principles are integrity and transparency. His eighty employees have taken this philosophy to heart.

Kwak Yun Chon cites the development of his own ERP system as the firm’s turning point. “We are better able to dovetail and control sales, production, management and administration,” he explains. “Once the ERP system had reached full maturity, it was clear that I would have to create a matching technological setting to achieve efficient production.” The major stumbling block was the flow of materials. The machines already made use of automated loading and unloading units. Staging the materials ready represented considerable logistic effort, however, since they were moved manually. As a result, Laser Center could no longer respond quickly enough to rising demand. “And so I decided to rebuild completely, focusing on optimized processes and automated machinery,” Kwak Yun Chon recalls.

Thinking in global terms

The manufacturing line went into operation in June 2012 — after three years of intense planning. And Kwak Yun Chon was willing to travel great distances. Fascinated by the TRUMPF manufacturing landscape, he took his architect to Ditzingen, gaining inspiration right at the source. Visiting a number of TRUMPF customers in Germany, he collected suggestions for automation concepts and ideas about the new technologies. Looking beyond local boundaries comes quite naturally to Kwak Yun Chon since his is a job shop with an international orientation. “We export many of the parts we produce. And we have already set up an American branch near Chicago. This has been a major milestone for us and contributed to Laser Center’s success,” he explains, quite self-assuredly. In his eyes, short lead times and maximum quality are simply a “must”.

This has now been achieved in Siheung. The key here is a Stopa storage system, 5.7 meters tall, offering space for 345 pallets. This high-rise storage concept delivers — entirely automatically — feedstock material to four TruLaser machines and then stores the parts after cutting. In addition to handling materials, this storage system is a logistics center with integrated administration for the finished parts. Here, too, Kwak Yun Chon is a forerunner, since there is no other storage system of this dimension in Korea. “With the Stopa storage system we can significantly boost productivity, thanks to automated material administration.” This helps Laser Center stand out from competitors. “Competition in sheet metal fabrication is great,” says this businessman. “We face tremendous price pressures.” His answers are reliable deliveries and high parts quality. “We attempt to increase efficiency not only in our own operations, but for our customers, too.”

Thinking outside the box is important for Kwak Yun Chon. Ultimately, he thinks in international terms.

A job shop with a plan

- Who:** Laser Center, Siheung, South Korea.
Founded in 1987, 80 employees. www.lasercenter.kr
- What:** This job shop sees itself as an international service provider and delivers to companies in the machine tools and systems engineering sectors, all around the world, providing laser-cut and bent components
- How:** TruLaser 5030 fiber, 2 x TruLaser 5030, 2 x TruLaser 3030, 2 x TruLaser 7040, TruLaser Tube 5000, TrumaBend V 320 X, 2 x TruBend 5170, 2 x TruBend 7036, BendMaster 150, Stopa Compact storage system with 16 stacks and 345 pallets



Open to new ideas

Touring the facility reveals highly economical concepts at every corner. One example: Kwak Yun Chon selected the so-called platform configuration for all the laser cutting machines. The switchgear cabinets are mounted on platforms above the machines instead of next to them. That saves floor space and makes it possible to install the machines closer together in the production hall — an idea he picked up during his trips to Germany. What's more, the first machine with a solid-state laser — a TruLaser 5030 fiber — is already at work in his shop. He quickly saw the benefit of that machine and ordered one soon after it became available.

His TruLaser 7040 units also fit right into the concept. "These machines' enormous productivity sold us right away," Kwak recalls. "This is true not only in mass production. The machines are made more efficient since they can nest shorter production runs perfectly. And the capacity

to work sheet metal up to four meters in length — well, that's something we just couldn't pass up."

But it's not only in laser cutting that he places great emphasis on economical solutions. A BendMaster 150 also makes for lean processes and high quality in the finished parts. For Kwak Yun Chon, all this merges to create a thoroughly harmonious overall picture, proving that his strategy paid off. Laser Center can now hold to the promise — "Ordered today, delivered tomorrow". □

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With its new manufacturing facility, Laser Center can make good on its promise: "Ordered today, delivered tomorrow."



CLASSY EQUIPMENT

The Springer GmbH Company manufactures high-quality furniture for indoors and outdoors.

The sun is shining, a warm breeze is wafting round your nose and there's summer in the air. What could be more enjoyable than relaxing outdoors, especially with furniture that — to top it all — is a real eye-catcher? This is what Christoph Springer, general manager at Springer GmbH in Nettetal, Germany, and his team were thinking as they decided on their new business line: building high-quality stainless steel furniture for indoor and outdoor use.

The idea came with the machine. Even though they had only just ordered their TruLaser Tube 7000 from TRUMPF, the people in charge were already thinking about how

to make the most of the production capabilities offered by the new tube cutting machine. Springer manufactures tube connectors such as T-joints and tubular elbows made of stainless steel. "But even for our first machine, a TruLaser Tube 3000, just cutting tubes was hardly a challenge," says Robin Röhse, who greatly influenced the development of this new furniture line. "The furniture production idea came to us because the new machine is also capable of cutting square and rectangular profiles — in addition to standard round tubes." Since the summer of 2012, Springer GmbH has been producing its own

stainless steel furniture line, which the company markets through exclusive specialty retailers. "Every single manufacturing step in our furniture production is performed on the TruLaser Tube 7000 — which is naturally a very lean, economical process for us," explains the general manager. "Besides, the laser-cut logo looks very classy and sets us apart from our competitors," Christoph Springer went on to say. Thus this machine supports the requirements of Springer GmbH down to the last detail: the manufacture of high-quality products to "Made in Germany" standards. □ www.springer-germany.de

Springer cuts its
stylish stainless steel
furniture on a
TruLaser Tube 7000.



Flexibility is the key, Ludwig Schopf and Holger Lendner agree. Their new sheet metal storage facility is a great help in this regard.

What you will

With its combination of a TruLaser 3030, a LiftMaster Compact, and a TruStore 3030, M-U-T Metallumformtechnik is able to react rapidly to customer wishes — regardless which sheet metal grade is required.



In the past, M-U-T had to turn down orders for items involving thicker material. Today the job shop can handle such work.



In Holger Lendner's opinion, an amply stocked sheet metal storeroom is the basis for satisfied customers. "We accept any kind of order and try to be fast and flexible at all times," explains this partner in the firm. The company, M-U-T Metallumformtechnik GmbH, holds at least 300 tons of many different sheet qualities in stock to ensure quick turnaround for every customer inquiry. That is hardly a simple task, because the firm's range of activities is wide. This job shop, employing 85, primarily produces small and medium-volume runs for industrial customers in Europe's German-speaking regions. In addition to its activities as a subcontractor, M-U-T also manufactures its own range of products – including sound absorbers for heating plants, flue gas equipment, and an outdoor stove. There is hardly any limitation to the choice of materials, either. In addition to construction steel and stainless steel, the company also processes aluminum – and brass and copper.

A decision made for the future

At the beginning of 2012, their claim of being able to supply both swiftly and flexibly posed two simultaneous challenges to the job shop located in the Bavarian town of Spiegelau. It was becoming difficult to keep track of all the materials in stock and, additionally, the storeroom taking up too much space. Furthermore, the company had to refuse orders, especially for items made of thicker sheets, because there was no machinery available for processing steel with gauges exceeding eight millimeters. Ludwig Schopf and his partner Holger

Lendner were quick to realize one fact. They were going to have to make an investment if they wanted to continue supplying promptly and flexibly. They looked around for automated, high-rise storage systems. The problem was that they were unable to reconcile the purchase with their cost-benefit calculations, since most automated storage systems were too expensive for their particular applications. "Without the direct link to a machine, a storage system like that simply eats up money and is idle capital," sums up Lendner.

Two birds with one stone

At the TRUMPF in-house exhibition Intech, he and Ludwig Schopf then found a solution that would solve their storage problem and expand production capacity at the same time: a TruLaser 3030 with a LiftMaster Compact, connected to a TruStore 3030 compact storage system. "This combination is a single-source solution that suits our needs precisely and is truly cost-effective for our degree of capacity utilization," explains Holger Lendner. The two of them quickly decided to buy this compact solution, which has enabled M-U-T to increase productivity significantly and at the same time save plenty of space. The compact TruStore occupies just 40 percent of the floor space the old system needed – and stores the same volume.

Cutting safely through thick sheet

"We are much more flexible with the new machine, especially when processing sheet up to 25 millimeters thick," explains Schopf. The installation, with its 5-kilowatt laser, is the first

Sheet steel products from the Bavarian Forest

- Who:** M-U-T Metallumformtechnik GmbH. Founded in 1988 by Ludwig Schopf and Erhard Lendner, succeeded by Birgit Schopf-Gaisbauer and Holger Lendner. 85 employees. www.mut-spiegelau.de
- What:** This specialist for small- and medium-volume runs produces items for industrial customers involved in electronics, machine building, renewable energy, commercial vehicles, the agricultural sector. In addition, M-U-T manufactures its own products such as sound absorbers for heating plants, flue gas equipment, and an outdoor stove
- How:** TruLaser 3030 with LiftMaster Compact and TruStore 3030, TruMatic 6000, TruBend 5130

2D laser cutting machine in use at M-U-T and has turned out to be a genuine all-rounder in two-shift operations. If everything goes according to plan, it will soon be working in three shifts. The chances for this look good. M-U-T can now accept orders for thick sheet products — thanks to the CoolLine feature, as well. “CoolLine keeps temperatures down when cutting thicker sheet metal with very tight contours. We can achieve a very high level of process reliability with the 5-kilowatt laser, even when cutting thicker materials,” states Lendner.

Automation has also resulted in shorter set-up times. The LiftMaster Compact moves sheets from the TruStore, which holds 150 tons of material and has 51 storage compartments, straight to the TruLaser 3030. On completion of the cutting process, it returns any remaining sheet metal to storage. “The entire process is accelerated by these shorter set-up times and the speed of the machine. This lets us dispatch finished parts to our customers one day after receiving an order,” explains Lendner.

Healthy growth

With this consistent, customer-oriented approach, M-U-T intends to retain both its mainstays in the future, too — doing job shop work and developing its own products. The key to success at M-U-T is continuing to be ready to invest and pursue healthful growth. “You must always keep up with the state of the art and at the same time think carefully about which investments really make sense. Technologies that might be of interest to us in the future include solid-state lasers, laser welding and a laser tube cutting machine.” □

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M-U-T also produces its own outdoor stove. With a combination (below) of the TruLaser 3030, LiftMaster Compact and TruStore 3030 — the numbers add up even for short production runs.



Günter Peters has built up his enterprise right on the border with the Netherlands.



“It all started off with 300 square meters of floor space and a single worker — me to be precise.”

From one to a hundred

In the Emsland region of Germany, Günter Peters turns a single employee into 100. How did he do it? With two cornerstones and a lot of courage.

Beyond the towns of Hamm, Münster and Rheine is where the Emsland region begins. This rural district along the River Ems covers over 2,880 square kilometers. The village of Twist, with its 9,600 inhabitants, marks the geographical border to the west. The town limits are congruent with the frontier to the neighboring Netherlands. And in the middle of Twist you will find a committed entrepreneur: Günter Peters. In May 2003 he founded a small specialist welding operation called Peters Maschinenbau GmbH & Co. KG. “On 300 square meters of floor space, and with a single worker — me to be precise,” remembers Peters with a laugh.

One welding unit, one saw and a drill were all the equipment on hand. Today, ten years later, you would hardly recognize the company. In addition to welded assemblies, the firm’s 100 employees and 19 apprentices now also produce laser-cut items, bent components, profiles, and turned and milled parts. This fits perfectly into the Emsland countryside with its large number of medium-sized companies.

On his path to success, the most important milestone was founding a second enterprise. In December 2007, Günter Peters ventured into laser cutting by founding Peters Lasertechnik GmbH.



Günter Peters relies on his employees' flexibility. In return, he rewards them in many different ways.

Better to do it yourself

Prior to that, two automatic saws and machining centers had been available and this small company was able to cut profiles to length for its assemblies. Peters nonetheless had to purchase laser-cut components from outside sources. "This had long been a thorn in my flesh because it didn't always work out properly," says Peters. Whenever his suppliers let him down, he in turn was unable to make punctual deliveries to his customers. He was quite certain about his goal: he wanted to produce these items himself. "But as a one-man operation, with a single welding unit, you don't start thinking about expensive laser machines." His business in producing welded assemblies was advancing quite well. Perhaps there was a chance for lasers after all?

Peters added up the figures — but back in the autumn of 2004 the risk still appeared too big. He waited — and the upwards trend continued. "At the beginning of 2007 I recalculated everything and realized that we had enough work for at least one shift. I intended to fill up the second shift by canvassing the market." He sat down at the phone and asked his customers whether they would be interested in buying

laser-cut parts from him. "Of course we would," was the reply. Peters saw this as an endorsement of his plans and in 2007 invested in a TruLaser 5040 and a TruBend 5230. Not even he could anticipate what happened next. "By March 2008 we were already running the first machine at full capacity in three shifts. The start was far better than I'd anticipated!" he reflects. "Buying everything from a single source turned out to be a great benefit for our customers." In April 2008 he ordered a TruLaser 5030. The third laser cutting machine — again a TruLaser 5030 — followed in 2011. Over recent years he has purchased another four press brakes from TRUMPF, as well.

Motivating employees

Nowadays, welded assembly and laser processing are two footholds of equal importance. Peters Maschinenbau works in three shifts — and sometimes even in four. "We keep our working hours flexible," emphasizes Peters. "If the orders are there, then we have to work on Saturdays and Sundays." This is what he feels is his success factor. "Our weekends don't start on Friday afternoon at twelve thirty, but only



Sheet metal processing using laser cutting machines and press brakes has grown rapidly. Peters has used that success to create a second pillar, in addition to offering welded assemblies.

when the work is finished.” This demands a high level of flexibility on the part of his employees. In return, they receive support from Peters in other areas. For instance, he helps them find openings in daycare centers for their children — or jobs for their partners. “The lack of qualified personnel has naturally hit the Emsland region. As an entrepreneur, you just have to rethink things.” This is why he specifically asks potential new employees about their wishes. “Obviously you can’t fulfill all of them, but our flexible program is certainly a major plus factor.”

He also tackles the lack of skilled workers by training them himself. “We attach great importance to fostering upcoming specialists. We always have between 15 and 20 apprentices,” says Peters. This applies to all kinds of vocations: machine operators, metalworkers, draftsmen and office clerks. In addition, his skilled workers are constantly offered advanced training courses. The results of his strategy are a flourishing enterprise and his first award. In 2007 he received the promotional prize awarded by the *Neue Osnabrücker Zeitung* daily in recognition of his economic advances and systematic personnel development.

Things go better together

Peters is not only breaking new ground with his staff development program, but also in how he cooperates with other firms. This year, for the second time, he presented his company together with a partner company from the Netherlands at his own stand at the Hannover Trade Fair.

“This company orders all its laser components from us. We work hand in hand,” he emphasizes. If, for instance, there is a move to modify components, representatives from both companies exchange views and look for the best possible solution. In addition to its own products — such as stone sorters and tube grinders — the Dutch company also produces welded assemblies. So does Peters. “However, we don’t compete with each other,” he says. “We manufacture primarily high-volume series. Depending on the complexity of the component, this could involve quantities of 100, 500, 3,000 or even 30,000 units. Our partner firm, on the other hand, specializes more in manufacturing individual components. This is why we complement each other so well — and strategic partnerships are quite simply important for the future.”

Technologically speaking, Peters has already planned his next steps. “We recently expanded our welding facility and purchased two robots. That ought to be enough for the next couple of years.” However, he is yet again looking closely at figures of the business involving laser technology. He is currently thinking about buying a Stopa high storage bay and investing in automated bending with the TruBend Cell solution from TRUMPF. “We have to be flexible in preparing for the future and we need to continue streamlining operations, which is why automation is such an important issue for us.” There is still a lot of excitement in the Emsland region. Peters has already demonstrated his willingness and courage to embrace change — and has always been rewarded for it. □

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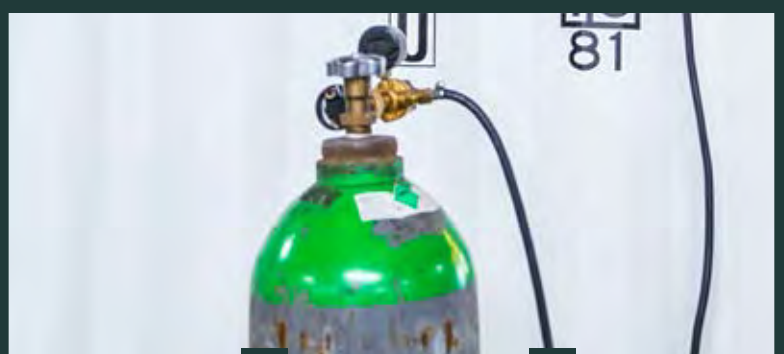
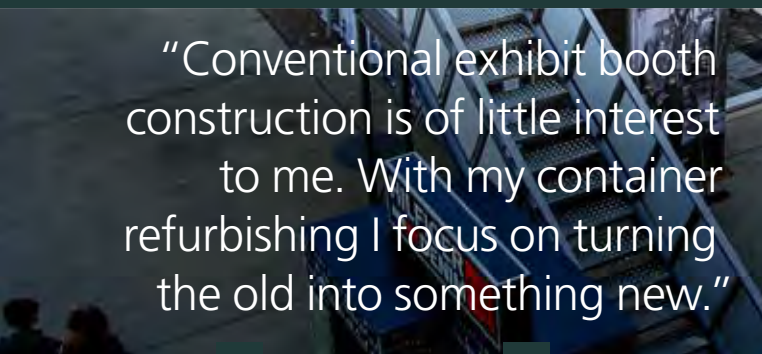
Perfect combination

Who: Peters Maschinenbau GmbH & Co. KG, Twist-Rühlerfeld, Germany. Founded in 2003, 100 employees. www.maschinenbau-peters.de

What: This job shop has two equally important sectors — welded assemblies and sheet metal processing. Customers come from throughout Germany and the Netherlands. In addition to the agricultural sector, the company largely supplies the concrete and forestry industries and shipbuilders

How: TruLaser 5040, 2 x TruLaser 5030 with LiftMaster, TruBend 5320, TruBend 5230, TruBend 5085

“The lack of skilled workers has also hit the Emsland region. As an entrepreneur, you have to start rethinking the situation.”



Venue creator

In the wintertime, Nils Clausen restores classic vessels in his boatyard. In the summer, he breathes new life into overseas shipping containers.

At the beginning of April, the last boats depart from his boat-building yard in the Berlin suburb of Oberschöneweide. As of then, it is time to admire these stylish beauties in and around Berlin. During the winter months – and with tender, loving care – Nils Clausen and his team of experts manually refurbish classic and historic motor boats and yachts and give them a mirror finish. However, his boat-building hall with a 200,000 square meters of floor space does not remain empty for long. Mid-April sees the arrival of the first 40-foot shipping containers, coming from Hamburg, Rotterdam or Stettin. They have one thing in common with the elegant vessels that previously graced the hall: Nils Clausen and his specialists transform these rectangular steel giants into extraordinary eye-catchers for use at exhibitions and events.

Turning old into new

When one of his friends – an architect and former university classmate – inquired as to whether he could convert several shipping containers simultaneously in his boatyard, Nils Clausen was enthusiastic at the notion. “Sustainability is important to me,” explains the founder of this boat-building enterprise. His mission statement: to create something enduring and of value in these fast-moving times. And why should this apply solely to boats? The infrastructure was already available. With a crane, big forklifts and hoisting gear, you can move marine containers just as easily as boats. The whole idea of container architecture was an appealing challenge to Clausen, who himself

studied architecture before turning his passion for vessels into a full-time profession. This was how the first project began in 2010. A multi-functional office structure made up of 14 containers for the Bread & Butter Trade Show in Berlin was an unusual and trendy novelty. “I am not interested in building conventional exhibit booths. Buying new material, erecting something to last for three days, and then dismantling and disposing of it – that’s not my idea of sustainability,” explains Clausen, who was born in Kiel, Germany, and grew up in the Dutch town of Leiden. In his view, old and beautiful boats are the cultural heritage of a maritime past, and they deserve to be looked after and preserved. He focuses on conservation and his notion of “turning old things into new things” with this second business sector, too.

Stylish environmental protection

“Turning scrap containers into buildings is not a new idea,” states Clausen. No matter where you look – in London, Seoul, Christchurch or Amsterdam – container architecture is hip, modern and eco-friendly. This boat-building company designs containers to meet customers’ individual requirements. Electric wiring, plumbing, air conditioning, elegant interior decorating – everything is possible. Clausen has the necessary specialists at hand.

“Working on boats and containers is fundamentally similar, it’s just that everything on boats is rounded and everything in containers is rectangular,” he explains.

In addition to structures that have a “short life span” for events and exhibitions, and which are repeatedly redesigned and used for various other applications, Clausen and his team have also completed long-term projects such as the Platoon Kunsthalle (an exhibition gallery in Berlin). 34 stacked shipping containers are now home to Berlin’s “artistic sub-culture” for two years.

“It’s great to see how – within a short period – you can turn a fairly ugly commodity into something that is both *en vogue* and sustainable,” says Nils Clausen. It is just like the boats. Stylish design and top-quality workmanship will never become disposable goods. □ www.containermanufaktur.com

Tell us, Mr. Clausen ...

... what do you see as your greatest strength? And your greatest weakness?

I have an eye for niches, have a frank approach to people and am good at improvising and selling. My weaknesses? I am erratic and shy away from confrontations.

... how would you characterize yourself in a few words?

I am inquisitive, tackle things without fear, and am open to anything. I enjoy life and have the willpower to shape things myself.

... where do you get your energy?

Life is wonderful but it can end at any moment. Creating something every day is thus a very satisfying feeling that gives me strength.

... what would you take with you to the proverbial desert island?

Enough to drink and my wife.



Depending on the time of year, Nils Clausen works on beautiful boats or hefty ocean shipping containers.

GLOBAL



Mythical beret Its name dates back to the times of Emperor Napoleon III, who first saw them in the Basque country and erroneously called them "Bask berets". In reality, berets are worn throughout southwestern France. During the French Revolution, berets found their way to Paris. In the 1940s, they became so popular that wearing a "French cap" was a sign of resistance during the German occupation.

Triumvirate



Paris, Clermont-Ferrand and Haguenau: These are TRUMPF's three locations in France.

284 employees work for the three separate subsidiaries. The administration and the sales department responsible for machine tools, laser equipment and power tools are based in Paris at TRUMPF SARL. TRUMPF AMSA SAS deals with customers in the medical technology sector, while Haguenau produces machine frames for use in TRUMPF machines.

Legendary song lore Occasionally political, sometimes critical of society, or simply melancholic. Thanks to great singers like Gilbert Bécaud, Edith Piaf and Serge Gainsbourg, it is hard to imagine the cultural history of the country without the French "chanson". An important source of inspiration: the philosophical and literary school of existentialist thought founded by the authors grouped round Jean-Paul Sartre.

Je me regrette rien



Excellent cuisine

More star-studded restaurants than in any other European country and a culture of eating that was even recognized by the UNESCO in 2010 as being an "intangible world cultural heritage". In a gourmet's view, France is a true land of milk and honey, and culinary delights are an indispensable part of the nation's culture.

Bon appétit!



A lame duck? It offers only 29 horsepower but has nonetheless managed to attain cult status. The Citroën 2CV, in many countries better known as the "duck", also embodied a feeling of freedom for a whole generation in Germany from the 1960s onward, a generation that scorned status symbols. In 2002, the 2CV was even voted car of the twentieth century in France and is shown on a commemorative stamp issued by the French postal service.

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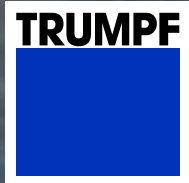
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VIEW

Your business. Your choice. Power up the possibilities in 2D laser cutting.

Experience a selection of laser cutting machines that is unique throughout the world, plus an unbiased consultation, focused on one priority: your business. With the advent of the new TruLaser 3030 fiber, you can now choose between a CO₂ or solid-state laser in any performance class – it all depends on what you're manufacturing. The decision is yours!

www.trumpf-machines.com/2d-laser





TRUMPF

Lights up!

Hundreds of floodlights illuminate the scene, the band strides on stage and the first chords sound. The concert mood reaches its first climax. But just a few listeners have the faintest idea about what has to be done in preparation for such an event. Only the right know-how and the proper equipment can turn a concert into an unforgettable event. With its range of accessories — such as equipment shipping containers, so-called “flight cases”, and speaker housings —

the British company Penn Elcom sets the stage for great performances. When manufacturing its products this company, active all around the world, puts its trust in machines “Made in Germany”. Among the equipment in the shop are two TruPunch 2020, three TruPunch 3000, one TruLaser 2025 and two TruBend press brakes. CEO Roger Willems fondly refers to its range of machinery as “TRUMPF City”. www.penn-elcom.com