TRUe

THE MAGAZINE FOR SHEET METAL EXPERTS

01 Dresden

Saxon-style success with ibexes, motorcycles and the World Wide Web

02 A Coruña

Forget anniversary parties: sheet-metal fabricators are giving flagship stores a better way to shine

05#2018 AMBITION

03 Siheung

Work and travel: a seasoned entrepreneur's ambitious expansion plans on the other side of the world

04 Ditzingen

Ambition takes spare parts higher: a converted spice mill becomes one of Germany's most cutting-edge logistics centers

TRUMPF

Some tough situations tempt many of us to **simply quit.** But what if that isn't an option? The answer is **ambition:** a character trait that pushes people to **overcome remarkable challenges.** Ambition is essential in **ice climbing** – one of the most extreme sports imaginable – but also in business, where entrepreneurs must often **rise above themselves** to master challenges.

IMAGE: Getty Images

Ambition polarizes people because its connotations are not always positive. Unfairly so, given that it **can lead** to **great achievements**. Take the Curie family, for example. Marie Curie was so **driven by ambition** that she emigrated to France to study physics and mathematics. The rest is history. And she **remains the only woman scientist to win two Nobel Prizes**. Her daughter Irène also became a Nobel laureate. Is ambition perhaps hereditary?

IMAGE: Getty Images

Ambition also means regularly setting **new goals.** Now that space tourists can book flights to the moon, NASA has set its sights on the **next bold destination:** Mars. The U.S. space administration plans to launch the **first crewed exploratory mission** to the Red Planet in the 2030s. This **pioneering spirit** is precisely what sets **full-blooded entrepreneurs** apart from the crowd. They would never contemplate resting on their laurels, not even for a moment.

IMAGE: Shutterstock

IMAGE: TRUMPF

Wanting to develop a **new machine concept** in just two years is an ambitious project. In the case of the **TruLaser Center 7030,** we succeeded. Not least because we had the courage to try out **new forms of collaboration** and new **development methods.**

The TRUMPF Group's primary objective is to grow by an average of 10 percent every year – and to finance this growth using our own resources. To do so, we need to grow faster than the market, which in turn means always being on the lookout for new opportunities. We can't afford to be complacent – even in today's favorable business environment. It's not a question of growing at all costs. What counts more for us is sustaining our efforts to place our customers' priorities first and always being a reliable partner, regardless of the challenges that might arise. A partner you can rely on to help maintain and expand your competitive edge. Our aim is to create compelling solutions based on common-sense ambition. Our new TruLaser Center 7030 laser cutting machine is a good example of this approach. By departing from traditional development methodologies, we were able to create an entirely new machine concept.

The entrepreneurs portrayed in this issue share our ambition of creating compelling solutions and working in partnership with their customers. Frank Zieger in Dresden is just one of many examples. Dissatisfied with the range of plastic motorcycle components available on the market, he set up his own basement workshop to produce metal components. His online shop now sells his products to customers around the world; Zieger is one of the leading suppliers in this market. And Spanish businessman Luis Voces once worked through the night to ensure he could hand over something essential to a customer who needed to open a new shop the next morning.

To speed up the process of delivering consumables and spare parts, we have revamped our logistics processes and established a new warehouse on a greenfield site. Our new logistics center is presented on page 30 ff. Digital connectivity plays a key role here, as it creates a transparent working environment, enabling us to provide accurate information on inventories. If we want to be credible as a leading supplier of digital solutions, then we must also use them ourselves – systematically and with a healthy measure of ambition.

YOURS SINCERELY, H.-JÜRGEN PROKOP

TRU

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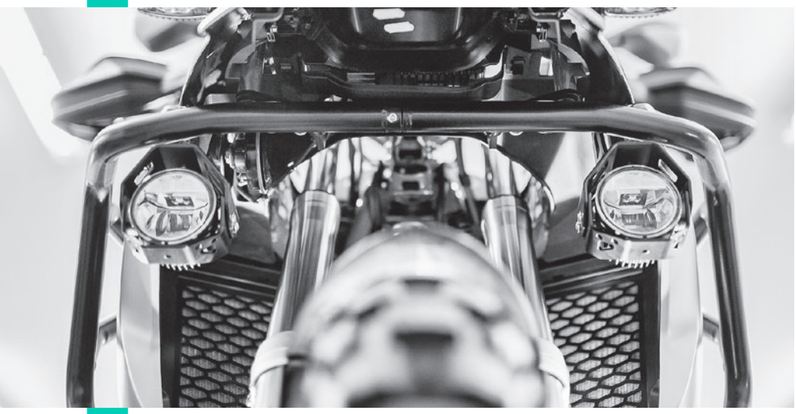

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Anyone who buys seven new machines in one year must have a plan – and an ambitious one at that! The Spanish company Hydracorte shows that the secret of success lies in more than just technology.

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The new TRUMPF logistics center opened its doors in 2017, but the project will never be truly finished. We explain why that's a good thing.

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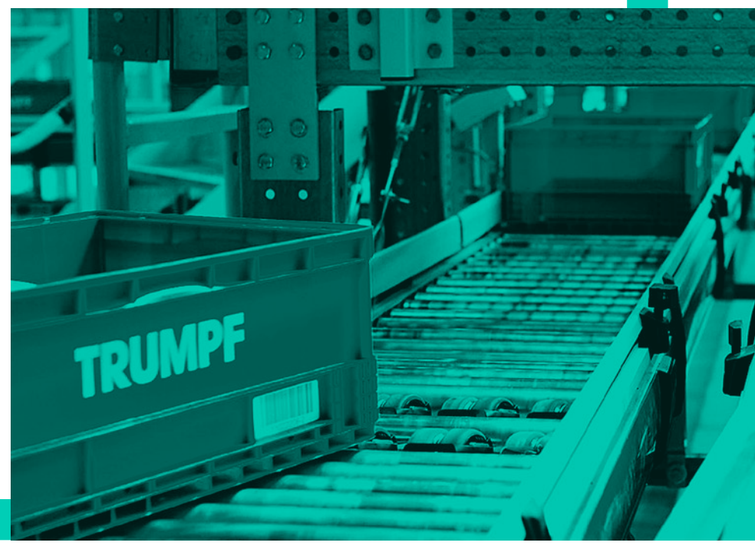


IMAGE: Marten Mehl

01

GERMANY

Ambition in Dresden

IN THE FAST LANE

What do you do if you're unhappy with a product? If you're Frank Zieger, you just make a **better version of it yourself.** In 2005, the entrepreneur couldn't find a high-quality license-plate holder for his motorcycle. So, he simply **made one himself** out of sheet metal. And that's how the Dresden-based company **IBEX GmbH** got started.

2005

Everyone starts out small

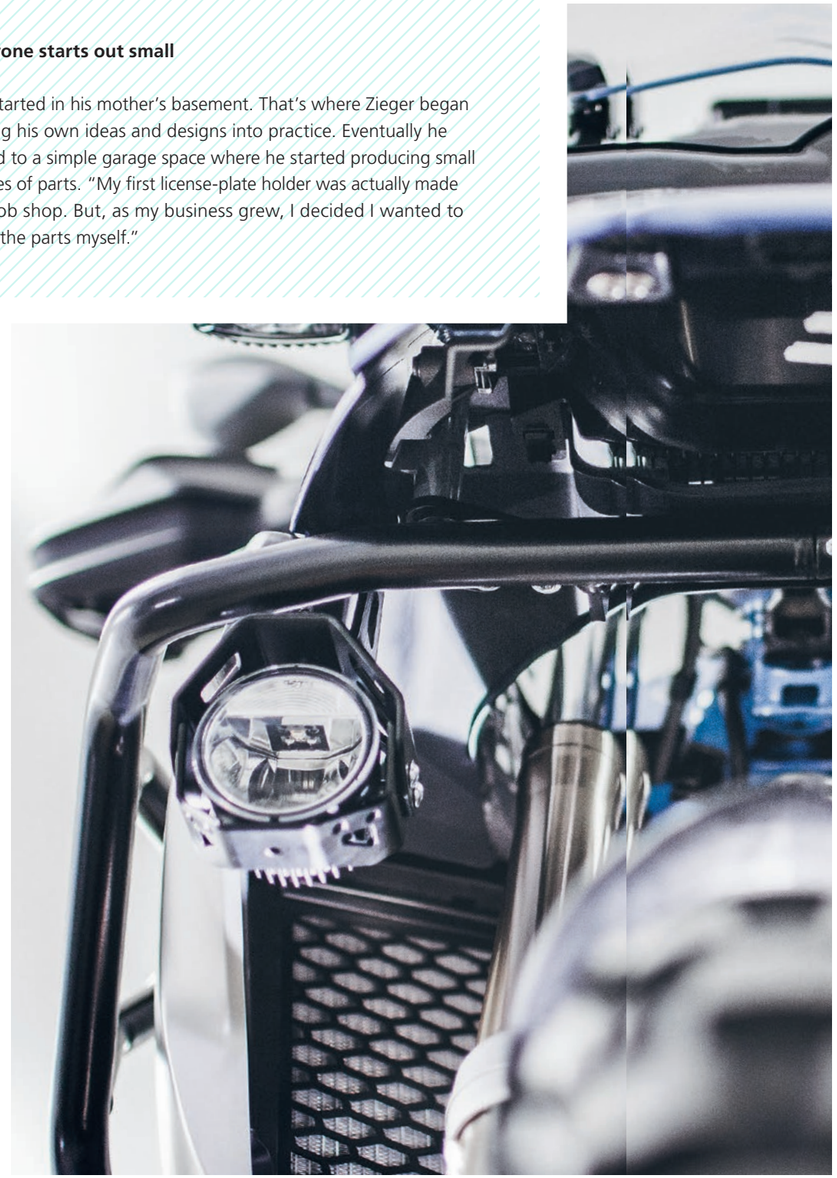
It all started in his mother's basement. That's where Zieger began putting his own ideas and designs into practice. Eventually he moved to a simple garage space where he started producing small batches of parts. "My first license-plate holder was actually made by a job shop. But, as my business grew, I decided I wanted to make the parts myself."

The ibex logo logically enough, the corporate logo features an ibex in a striking pose – the perfect choice for this dynamic and ambitious company.

You would imagine the average 19-year-old spends more time thinking about parties than founding their own company. But Frank Zieger is far from average. He completed his apprenticeship in metalworking with distinction, earning the top spot among all that year's apprentices in all of Germany. He never intended to set up a big company, but he had always harbored an ambition to make things better. So, his spontaneous decision to improve on the plastic license-plate holders for motorcycles by making them out of sheet metal instead made perfect sense. "Bit by bit, I started to build up my company, doing everything off my own back," says Zieger. That was in 2005. Today, this ambitious entrepreneur from Saxony, Germany employs 21 people – and his company is growing.

IBEX is a leading specialist in the motorcycle-accessories market, and it has a reputation that extends far outside Germany. From travel accessories and work stands right through to engine covers, the company designs and manufactures a complete range of motorcycle add-ons. And if the Dresden team discovers that a part doesn't exist, that simply spurs them on to develop it themselves!

In this article, we review some of the key milestones in the evolution of IBEX – and take a brief look at what the future may hold.

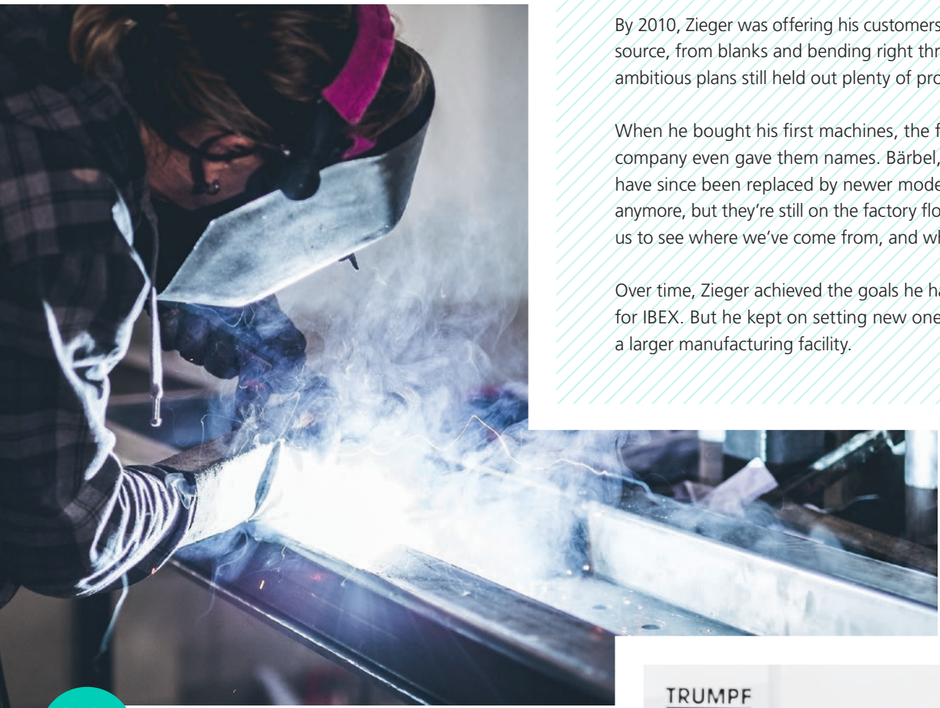


IMAGES: Marlen Mieth

2005

Internet first

The thing that distinguishes Zieger from many other sheet-metal fabricators is his sales strategy. Right from the start, he sold his products on the Internet through his very own web shop on eBay and Amazon. "That was the simplest way to distribute my products, because back then it was just me on my own!" This channel continues to pay dividends, allowing Zieger to reach his customers quickly and easily in a format they feel comfortable with: "People nowadays are completely fine with buying things online."



2007
2008

His first bending machine – and his first employee

Just two years after founding his company, Zieger purchased his first bending machine. At the same time, he took on his first employee: "That was such a new experience for me. Suddenly I found myself having to give instructions and being responsible for someone who worked for me. And, of course, the TruBend 3066 was a big investment, too." The young entrepreneur needed to take out a loan, so he approached a major bank. It turned out they didn't have the same confidence in Zieger's ambitious goals – but fortunately TRUMPF did. "I ended up buying my machines with a loan from the TRUMPF bank. It certainly paid off, and now that same bank that originally turned me down is eager to finance my next purchases!" he says with a smile.

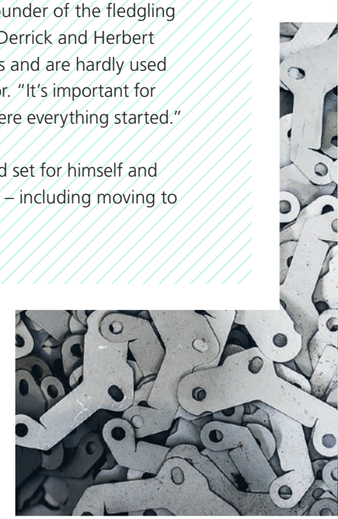
2010

A bigger range of products

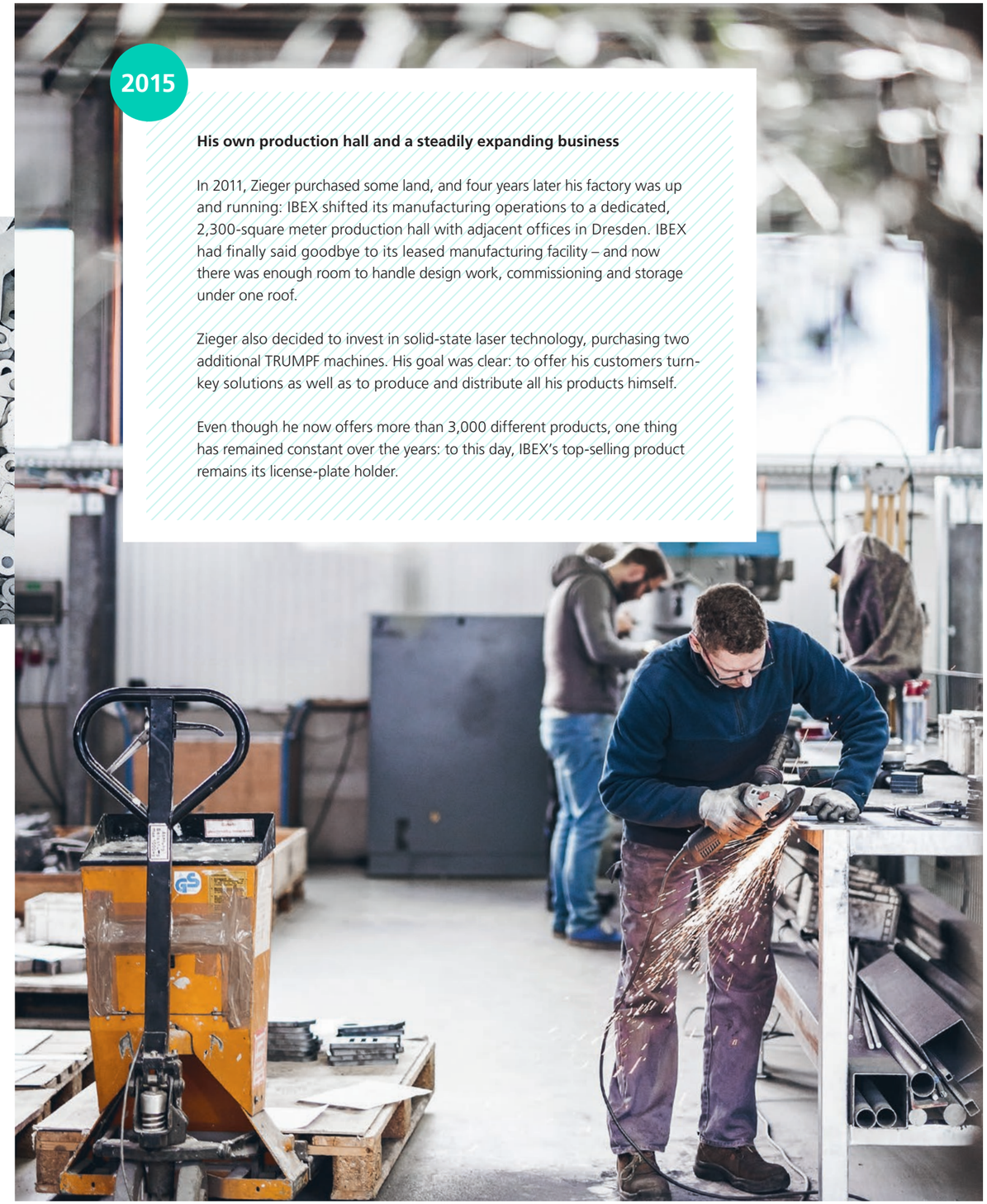
By 2010, Zieger was offering his customers everything from a single source, from blanks and bending right through to welding. And his ambitious plans still held out plenty of promise for the future.

When he bought his first machines, the founder of the fledgling company even gave them names. Bärbel, Derrick and Herbert have since been replaced by newer models and are hardly used anymore, but they're still on the factory floor. "It's important for us to see where we've come from, and where everything started."

Over time, Zieger achieved the goals he had set for himself and for IBEX. But he kept on setting new ones – including moving to a larger manufacturing facility.



IMAGES / Marien Meth



2015

His own production hall and a steadily expanding business

In 2011, Zieger purchased some land, and four years later his factory was up and running: IBEX shifted its manufacturing operations to a dedicated, 2,300-square meter production hall with adjacent offices in Dresden. IBEX had finally said goodbye to its leased manufacturing facility – and now there was enough room to handle design work, commissioning and storage under one roof.

Zieger also decided to invest in solid-state laser technology, purchasing two additional TRUMPF machines. His goal was clear: to offer his customers turn-key solutions as well as to produce and distribute all his products himself.

Even though he now offers more than 3,000 different products, one thing has remained constant over the years: to this day, IBEX's top-selling product remains its license-plate holder.

Frank Zieger owns several motorcycles, and he enjoys using them to try out his accessories.

2016

Fostering connectivity

In 2016, Zieger invested in a new, fully automated ERP system. This provides multiple benefits, including the ability to manage all his incoming and outgoing goods on a digital platform. The ERP system also allows him to synchronize his online shop with his warehouse. Having everything connected makes it easier to keep an eye on the big picture. It has also streamlined his processes and reduced defect rates.

IBEX aims to make everything people need for their motorcycles out of sheet metal. These crash bars are just one example of what the company offers.

What does the future hold?

Zieger has very definite plans for the next few years. These include expanding his range of machinery, introducing new technologies such as tube lasers, and continuing to design new products for the motorcycle market. By the end of 2018, he hopes to offer his customers everything they could possibly need for their motorcycles. "It's the ideas we come up with that set us apart. And you can be sure that anything with IBEX on the label is pure IBEX, one hundred percent!"

IMAGES: Marlen Mieth

01

In brief:

The versatility of laser cutting

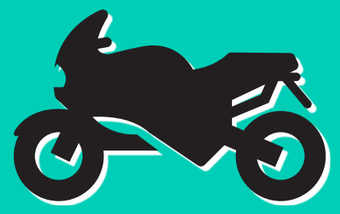
Frank Zieger and IBEX are key players in the market for motorcycle accessories. License-plate holders and other **intricate parts** require precisely engineered blanks. Zieger uses various machines to fabricate them. His favorite is the **TruLaser 3030 fiber,** the 2D laser cutting machine highlighted in this article.

Short & concise

The versatility of laser cutting

Maximum versatility with the TruLaser 3030 fiber

The TruLaser 3030 fiber offers real flexibility when it comes to processing sheet metal. Different options are available to match the sheet thickness and specifications in each case.
www.trumpf.com/s/m7dt2g



In 2017, Frank Zieger traveled to Romania with two colleagues. Covering 4,500 kilometers in nine days, it was a memorable adventure for them – and a real test of endurance for the IBEX motorcycle accessories. A test that Zieger is pleased to note they passed!

IBEX's first production shop measured just 50 square meters. So the current figure of 2,300 square meters is quite a jump!

About the customer

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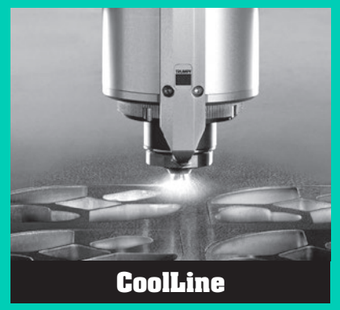
www.ibex-parts.de/

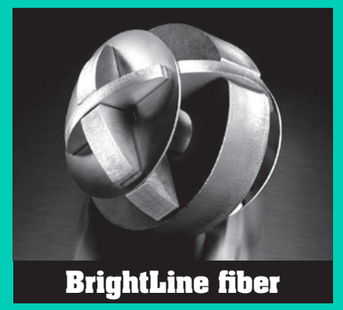
Machinery

- TruLaser 1030
- TruLaser 3030 fiber
- TruBend 3066
- TruBend 5130



CoolLine

CoolLine makes it easier than ever to process thick mild steel. By cooling the workpiece during cutting, it combats mild steel's susceptibility to rapid heating and uncontrolled melting during laser cutting. CoolLine helps the laser cut intricate contours in thick mild steel with impressive process reliability.



BrightLine fiber

Through thick and thin, this option produces outstanding cutting results across a whole range of sheet thicknesses – all while maintaining the high speed of the solid-state laser, especially in the case of thin sheets.

Highspeed Eco

In April 2018, TRUMPF will add another feature to its TruLaser Series 3000 machines with solid-state lasers: Highspeed Eco. Compared to standard cutting methods, this process consumes 70 percent less cutting gas on average – and it increases sheet throughput by up to 100 percent.

02

SOUTH KOREA

Ambition in Siheung

A KOREAN-AMERICAN DREAM

What was originally intended as a year's sabbatical eventually turned into **a new life,** with Kwak Yun Chon making a new home for himself in the United States. After years of running his successful company **Laser Center in South Korea,** his plan was to seek out far-off shores to take a break from work. But you can never tell when **ambition** might strike!

IMAGES: Tim Franco

Mr. Yun Chon, you're hoping to gain a solid foothold in the United States with Laser Center. That's quite challenge 10,000 kilometers away from home. What motivated you to take this step?

I founded Laser Center Korea in my late twenties. We specialized in making sheet-metal parts for a wide range of customers. The company grew rapidly, year after year. When I hit 45, I wanted to take a break, something like a year's sabbatical. So, I made the snap decision to move to the United States with my family. That was in 2004, and originally I didn't intend to work there. But ideas kept popping into my head, and suddenly I knew I wanted to set up a new business. Looking back, of course, I can see that I didn't know enough about the market at that time. And I didn't have the staff I needed to expand.

So, what happened to all those ideas you had?

I opened my company in the U.S. in 2010. For the first three years, I just racked up losses. But things improved in year four, and we finally started to make a profit. Meanwhile, in South Korea, we had finished building an automated factory. We had been running it with a large-scale storage system since 2012, and everything was running smoothly. At the same time, we were making a start on our first automated factory in the U.S. so that we could start making laser cut parts there, too. Up until then we had been manufacturing our products in a leased production hall. After three years of careful planning, we finally broke ground on our own facility in June 2017, and we're hoping to open the new factory soon.

Apart from losing money, did your company experience any other difficulties during that initial period in the U.S.?

We certainly had to overcome a few challenges, but TRUMPF helped us out so much – not just in the U.S., but also in South Korea and Germany. We've been partners for 15 years, and with ties that strong we knew that they would always have our back. A good example was the whole matter of communicating with American banks. At first, it wasn't easy to secure the financing we needed because we were a foreign company. TRUMPF really helped us out a lot with that.

Why were you so confident that you would succeed in the U.S., despite all the setbacks?

Whether you're dealing with customers in South Korea or the U.S., there's one thing they all have in common: They want high quality products at a good price, delivered on schedule. And that's what we offer.

But there must be some differences between the South Korean market and the U.S. market, surely?

Of course, and they're primarily cultural ones. In the U.S., suppliers, customers and manufacturers tend to view themselves as partners on one and the same level. They exchange token gifts to show how well the relationship is working – for example, everyone might give and receive some chocolates or cookies at the end of every year. In South Korea, hierarchy plays a much bigger role, both within a company and in relation to your customers and suppliers.

The automation of production processes has been something of a watershed moment in Laser Center's evolution in South Korea. Do you see automation as the way forward in the U.S., too?

The use of an automated storage system can determine how efficient a company is. Lots of companies and job shops in Germany already have automated storage systems, but it's far from typical in South Korea and the U.S.. At Laser Center, however, we see automated storage as absolutely essential. We will definitely be installing it in all the facilities we open.

Kwak Yun Chon has big plans. He intends to set up several manufacturing plants in the U.S. over the next few years.

An ambitious plan, but one that suits your business model perfectly, I think? After all, your expansion in the U.S. was also something that you initiated off your own back. Did you ever feel that the long distance between your homeland and the U.S. was an obstacle?

It may sound odd, but the distance didn't really make much of a difference. We were hugely helped by the globalization and digitalization happening around us. In South Korea we render all our processes in a digital format, so I could easily access the information I needed from the U.S.

In South Korea, Laser Center's facilities are already fully automated. Four TruLaser machines are connected to a STOPA storage system.

You've now made the decision to actually take up residence in the U.S.. Your younger brother, Kwak Yoon Jae, runs Laser Center Korea as the company's vice president. Do ambition and an entrepreneurial mindset run in your family?
My father was a businessman. I spent a year working with him before I set up my own company. I learned a lot from him about how to run a business. It was a while later that I asked my younger brother, who was working for a different company, if he wanted to join me. I have so much trust and confidence in him; he really is my best business partner! And yes, I do think that a passion for hard work and entrepreneurship runs in my family.

There are lots of companies that offer services similar to those offered by Laser Center. What sets you apart from the competition?
We don't actually strive to distinguish ourselves from other companies. Instead, we focus primarily on how we can improve our products and services. We're naturally proud of what we do, and we have a good reputation in the marketplace – and that's what you get when you work hard.

Did you visit any companies that were already using TRUMPF machines successfully to discover which machines were best for each type of job?
With TRUMPF's help, we visited a lot of companies that are seen as role models in our industry – in Germany, Japan and South Korea. When we were designing our automated factories, we paid several visits to the company KWM in Germany. That inspired us to come up with the design for our Korean factory. We also visited the company Kurashiki Laser a few times in Japan, which gave us some useful insights into how to develop our storage system. I'm really grateful to those companies for letting us visit their factories. It's not something people do lightly.

How have you acquired new customers in the U.S.? Did anybody lend you a hand?
No, nobody. We simply tried to win over customers who might be interested in our products by calling them and even sending them postcards. But I like following a more direct approach to that kind of thing, too. Our employees visited prospective customers and showed them our brochures. That was the beginning of our marketing and sales efforts. Nowadays, our customers recommend us to other companies, and that's how we get new orders.

Is an ambitious entrepreneur like you ever satisfied with what you have achieved?
I'm tremendously satisfied with our business, and especially with my team. Collaborating with colleagues and employees to reach a goal is much more rewarding than doing everything on your own. It really is a blessing to be able to share all this success with our employees. The thing about a business is that you need everyone working together in harmony, like in an orchestra. And to stick with that metaphor, I reckon Laser Center is playing a pretty good tune!

IMAGE: Tim Franco

02

In brief:

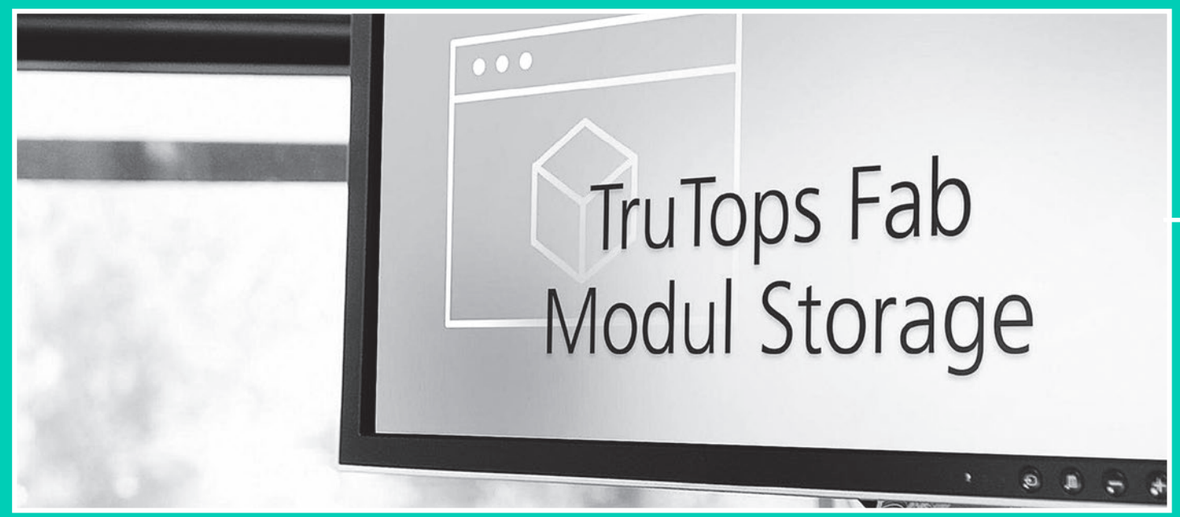
Intelligent warehouse management

An **automated** storage system is practical, future-proof and flexible. And the right **software** can make it even more efficient. Discover the advantages of inventory management with the TRUMPF **TruTops Fab Storage module.**

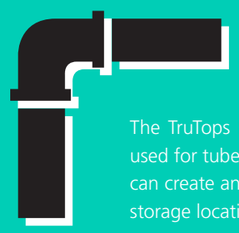
Short & concise

Intelligent warehouse management

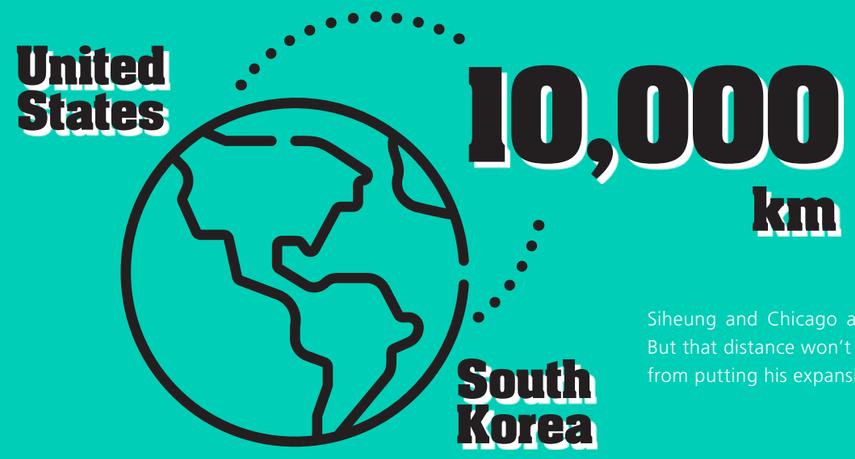
The TruTops Fab Storage module is the ideal starting point for a warehouse management system: from stock management and manual storage solutions to large automated warehouses. This software helps you control and monitor your entire material flow. Not only today but also in the future, because TruTops Fab Storage module expands to meet your needs. It's also efficient. Users can save resources by managing remainder sheets and reusing them in new programs. The TruTops Fab Storage module also optimizes intralogistics. It allows the storage system to double as a transport system in which components are re-stored for distribution to the next workstation. With just one click, users can obtain material master data, or information on additions and removals and current stock levels. *www.trumpf.com/s/j7nbue*



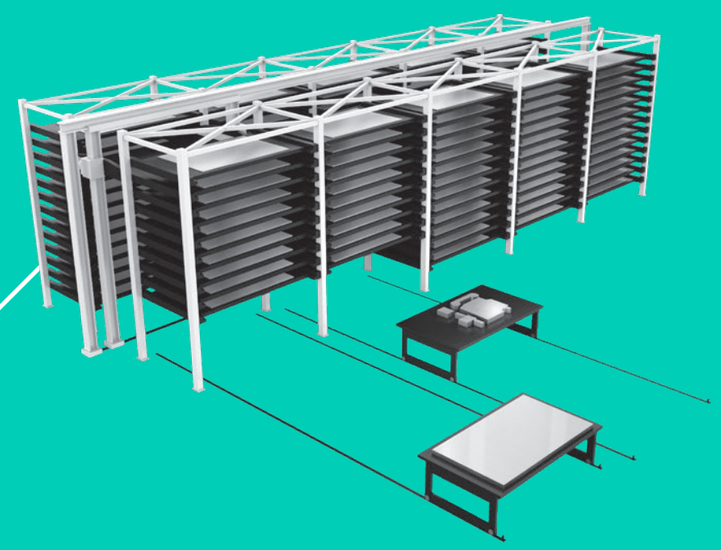
A new feature of the TruTops Fab Storage module is mobile access. Users can utilize a handheld device to scan the barcode on materials, enter the storage location and update inventory. Users no longer need to walk to and from operating terminals.



The TruTops Fab Storage module can now be used for tubes and rod materials. This software can create an inventory list of tubes and assign storage locations to them.



Siheung and Chicago are 10,000 km apart. But that distance won't stop Kwak Yun Chon from putting his expansion plans into action.



The machinery in Kwak Yun Chon's factory are connected to a STOPA high-bay storage system. STOPA systems have a small footprint, yet provide lots of capacity for unprocessed sheets, finished parts, scrap skeletons and tube profiles. Thanks to the modular design, they are also fully flexible in terms of length, width, height and sheet format. A practical pallet picker crane lets operators maneuver storage pallets. For more information on STOPA storage systems, go to: *www.trumpf.com/s/kljr9w*

About the customer

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Machinery

- TRUMPF TCL 3050
- TruLaser 5030
- TruLaser 5030 fiber
- 2 x TruLaser 7040
- 2 x TruLaser 3030
- TRUMPF Tubematic
- TRUMPF TRB V320X
- 2 x TruBend 5170
- 2 x TruBend 7036
- TruDisk 3001

03

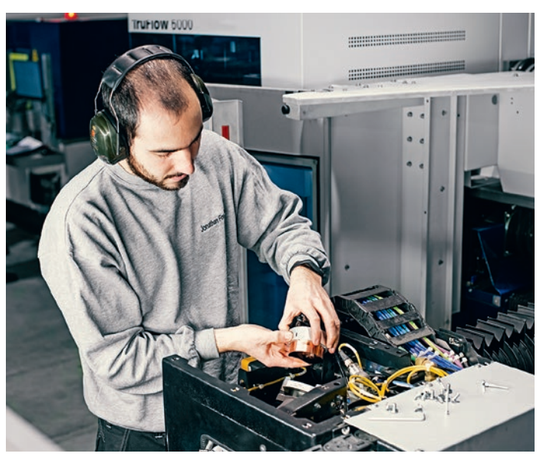
SPAIN

Ambition in A Coruña

MADE IN GALICIA

Flagship stores: that's what companies call their most prominent or important stores in major cities around the globe. Their location and decor set them apart from standard retail outlets. And that's exactly the kind of store that the Spanish company **Hydracorte** fits out with furnishings and metal paneling. To meet their customers' expectations, Luis Voces and his team must deliver **perfect results.** And that's exactly what they do – thanks to machines from TRUMPF and plenty of **ambition.**

IMAGE: Niels Schubert



It's 11 p.m. on a Sunday evening, and Luis Voces is celebrating his birthday. Suddenly the phone rings. Is it someone calling to wish him a happy birthday? No, it's a customer. In an agitated tone, the caller explains that he wants to open an important store the very next day, but they don't have the big name sign to go above the door. They are at their wit's end, because the sign needs to be in Madrid by 10 a.m. tomorrow. Luis immediately sets up a spontaneous night shift. He makes the sign himself and gets on the first plane the next morning to take it to the flagship store. Some people glibly say that "nothing's impossible", but that's a code that Hydracorte and its founder Luis Voces actually live by – and it's clear from the moment you meet him.

We're treated to a warm welcome when we arrive in A Coruña in northwestern Spain. Luis immediately calls us by our first names and tells us how excited he is to show us around his company. He clearly wishes he could introduce us to every member of staff personally!

IMAGES: Niels Schubert

Hydracorte is part of the Caamaño Group, a global network of companies that specializes in building, renovating and fitting out all kinds of retail outlets. The other companies in the Group are actually Luis's biggest customers. As a supplier of metal parts, Hydracorte lies at the start of the production chain. They make just about everything you can think of in A Coruña, from small, fragile parts to fully fledged modules. Their products include signs, furnishings, paneling, facades and plenty more. Luis Voces founded Hydracorte together with business partners. One of them, Emilio Mahía, died recently. "Emilio was the heart of our company and the one who inspired our philosophy. We miss him dearly, but his memory lives on," says Voces.

Just in time

If Hydracorte fails to deliver perfect quality within strict deadlines, then the whole thing collapses like a house of cards. It's certainly a challenging role to play!

> " We never say **no** to anything. "
>
> Luis Voces, managing director of Hydracorte.

To get everything done in the allotted time, the company operates its factory in multiple shifts. The company's technical design office is open five days a week from 6:30 a.m. to 10:30 p.m., and the machines work around the clock. One of the things that drives Hydracorte to ever greater heights is the ever more demanding nature of the Caamaño Group's, and indeed the end customers', requirements. Luis believes that one of the keys to success is keeping up with the latest technological developments. Last year alone, the 49-year-old company founder purchased seven new machines from TRUMPF. But that's not the whole story. His employees are his top priority, and he nurtures their professional development with training courses on machine operation and other topics. Their skills are what he relies on. And they share his ambition and work in line with his motto that "We never say no to anything – at least not until we've tried it out first!"

Hydracorte was the first company in the city of A Coruña to take the plunge into laser technology. Some companies in Madrid, Barcelona and the Basque Country had already made the leap, but in the north of Spain – and particularly in Galicia – Luis was very much a pioneer. Today, however, there are 30 other laser-cutting companies in the vicinity. Competition has intensified, which is one reason why this ambitious businessman is always seeking new ways to stand out from the crowd.

Complete confidence – and a complete success

One example of how he does that is the TruLaser Robot 5020 laser welding system, which produces very fine and visually appealing seams. This is a key criterion, especially in the furnishings industry with its high share of visible parts. Machine operator Sandra Panedas is very much aware of the benefits this system offers, and Luis praises her skill in using it. As we peer over her shoulder, he continues to pay tribute to her expertise, as indeed he does with virtually all his employees.

Luis and a partner founded Hydracorte. There were only two people in the first year; the company now has more than 80 employees.

He knows from personal experience what it means to get these machines working at their very best day after day. Luis himself did a two-week training session at TRUMPF just one year after co-founding the company in 2001. He decided to learn not just one technology, but three at the same time. "They trained me in punching and tube cutting as well as flatbed laser programming and operation. Everyone told me it was impossible in just two weeks. But I wanted to get started as quickly as I could."

Nowadays, Luis doesn't know how to operate the new machines. "But of course I don't have to, because the people who work for me are much better than I am! I trust them 100 percent and give them the space they need to do their job. It's our team that makes the difference. The way they transcend boundaries, try out new things, and constantly push the envelope – that's what sets them apart." It's clear that this isn't merely a corporate line – Luis very much means what he says.

A father of two children, Luis is proud of what he's built. You can feel his ambition perpetuating the success of this company in the form of cutting-edge machinery, top-quality products and highly qualified employees.

But it's not just about being the best. The main thing for Luis is that his customers are satisfied – because only then can he be satisfied, too.

IMAGES: Niels Schubert

03

Welding with a laser

Companies with customers as demanding as **Hydracorte's** simply can't settle for second best. TRUMPF's **laser-welding** systems offer the perfect solution for creating strong and **visually appealing** bonds between parts.

Short & concise

Welding with a laser

Laser welding with the TruLaser Weld 5000

When it comes to automated laser welding, the TruLaser Weld 5000 system from TRUMPF is a great choice. Its laser welding process produces high-strength, stable weld seams that look great. This system generates less heat than arc welding, causing less distortion and making the material easier to process in subsequent steps. Laser welding is suitable for products from various sectors, including machine building and furniture manufacturing, the food industry, and medical devices.

You can find out more about the TruLaser Weld 5000 here:
www.trumpf.info/r7gmz0

The production start-up package: Laser welding in five steps

To make it as simple as possible to adopt laser welding technology, TRUMPF offers a production launch package. In five easy steps, users learn everything they need to know about laser welding – so they can start manufacturing their own parts.

1 Select a part

In the first step, TRUMPF helps the customers choose a part for production ramp-up.

2 Attend a workshop

Next, TRUMPF runs a workshop to teach the basics of laser welding to the customers, who can then apply what they have learned to their chosen part.

3 Build a fixture

TRUMPF designs a fixture that the customers can then produce themselves.

4 Start production

An application consultant provides support with the production process, helping the customers to position the part and optimize the parameters.

5 Begin productive laser welding

Time for the customers to start manufacturing their own series production parts!

FusionLine:

The new FusionLine method can be used to bridge gaps during laser welding. It compensates for inaccuracies in the welding process, bridging gaps up to one millimeter wide. That opens up the possibility of using the laser on many parts that were originally designed for conventional welding methods. In this way, FusionLine provides an easy introduction to the world of laser welding, enabling users to boost the capacity of their machines.

Hydracorte produces parts for flagship stores all over the world, including stores in Rome, New York City, London, Madrid and Abu Dhabi.

7x

Hydracorte installed seven new TRUMPF machines in 2017 alone.

Machinery

- TruPunch 1000
- TruLaser Tube 5000 fiber
- TruLaser Tube 7000
- TruLaser Robot 5020
- TruLaser 5030
- 2 x TruLaser 5030 fiber
- TruLaser 5040 fiber
- TruBend Center 5030
- STOPA Universal

About the customer

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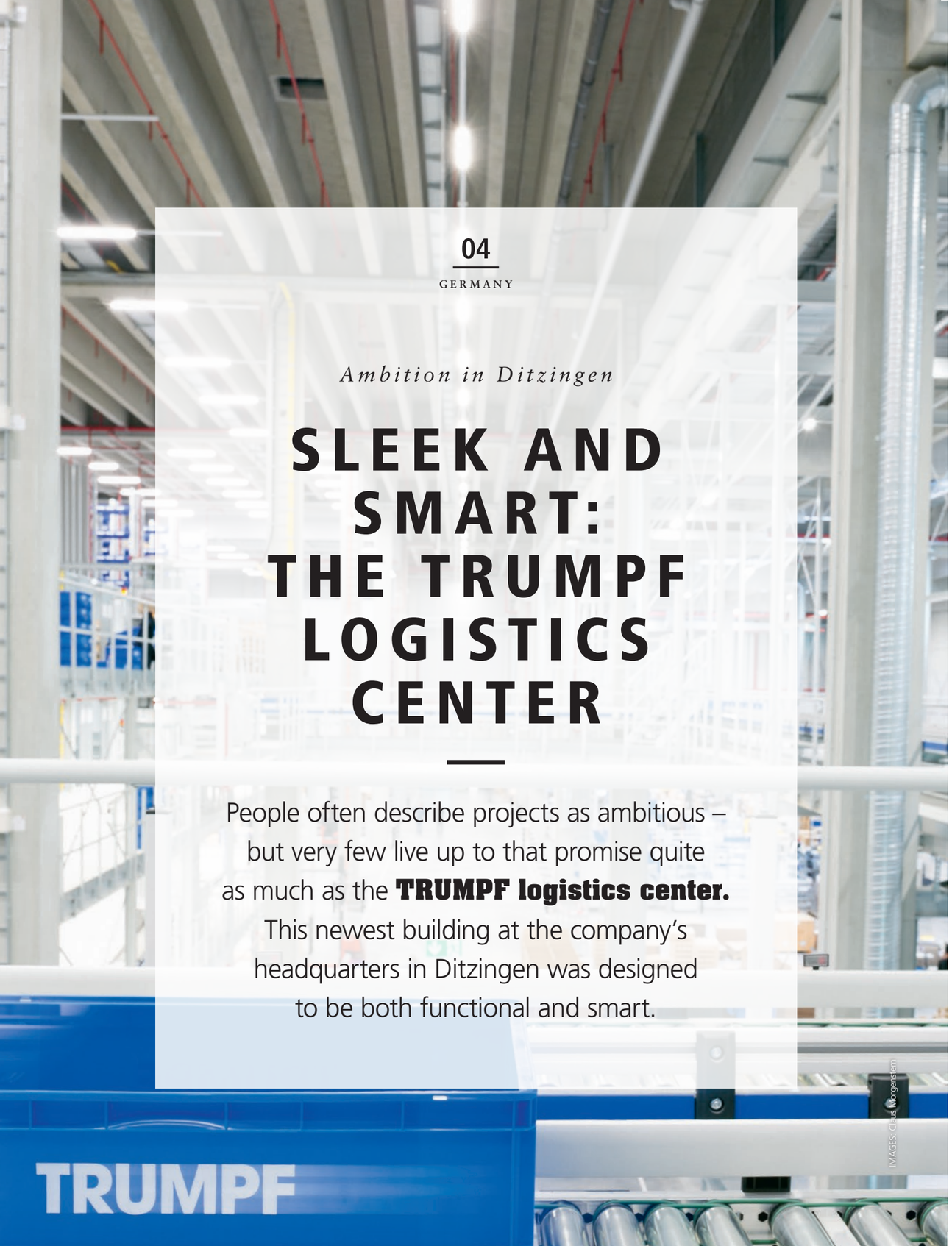


IMAGES: Claus Morgenstern

04

GERMANY

Ambition in Ditzingen

SLEEK AND SMART: THE TRUMPF LOGISTICS CENTER

People often describe projects as ambitious – but very few live up to that promise quite as much as the **TRUMPF logistics center.** This newest building at the company's headquarters in Ditzingen was designed to be both functional and smart.

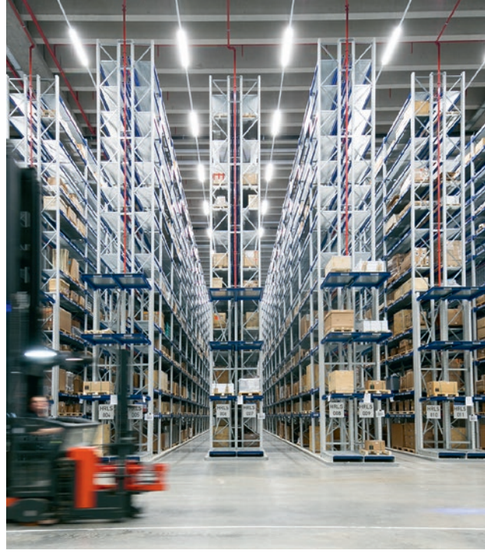
A car needs a certain amount of care and attention, as every driver knows. If things aren't running smoothly, a part might need replacing. And some things – brake pads and timing belts, for example – must be replaced regularly. The same applies to laser systems and machine tools. From time to time, they need new nozzles, protective glass or lenses. To make sure its customers all over the world can obtain the wear parts they need as quickly as possible, TRUMPF opened a new logistics center in Ditzingen in fall 2017.

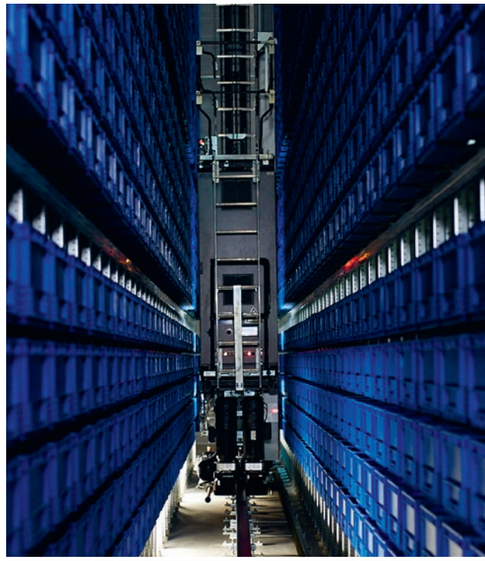
The old warehouse – a former spice mill – had been in use for 11 years. With its limited space and low, 3.5-meter ceilings, it was simply too small to meet the company's growing needs. The time had come for a new solution, and Sven Müller – who heads up spare-parts logistics at TRUMPF – agreed to take on the challenge. He started by assembling a skilled team of colleagues and external consultants. That was around three years ago. They jointly embarked on a meticulous analysis of the logistics center's existing and future capacity needs, examining a range of different warehouse strategies. The team essentially started from scratch with a blank piece of paper, first coming up with some preliminary designs and then running tests to find suitable software. They immediately ruled out the possibility of adopting the old solution; something novel and innovative was needed to ensure the logistics center would remain competitive over the long term. Eventually they opted for a software solution from SAP, which was then specially tailored to TRUMPF's requirements. Work began on the facility in fall 2015 and, just 18 months later, the company was ready to start moving into the new building. All TRUMPF consumables and spare parts have been stored in their new home since June 2017.

Larger, higher, faster

The logistics center offers everything a modern warehouse could need, including 18-meter ceilings. What's more, it's around three-and-a-half times as big as the old facility, so it has plenty of capacity to meet future requirements. The storage areas cover a total floor area of 13,000 square meters. They were deliberately designed to be just 70 percent full when completed, because the inexorable growth in demand means that the shelves will inevitably fill up soon. Even today, the volume of shipments shows just how much the Ditzingen workforce is dealing with on a day-to-day basis. The company ships some 60,000 items a month, which comes to around 270,000 packages a year. That prompted the designers of the new facility to add more shipping and receiving docks, upping the figure from 3 to 14.

Yet probably the most significant change is the way in which all the flows of materials are rendered in a digital format, with





"The **intelligent warehouse control system** analyses how fast-moving the products are and arranges them accordingly."

IMAGES: Claus Morgenstern

onscreen depictions of every process ensuring maximum reliability. TRUMPF has opted to use digital, paperless processes not only for its warehousing operations, but also for all the incoming and outgoing flows of materials – a perfect solution for maximum transparency and responsiveness. At their workstations, employees receive only the information they need to complete the task at hand. Just one example of this is a shelving solution for incoming goods, found only at TRUMPF. A light shows the worker which tote box they should take from the cart next and put on the conveyor belt leading to the warehouse. By this point, the system has already put everything in priority order; the tote boxes and shelves also feature barcodes to make the whole process even more reliable. Probably the most significant and most ambitious innovation was the shift towards a paperless workplace. Although it was far from easy to put into practice, TRUMPF has continued to vigorously pursue this approach to ensure things run in a flexible, automated and sustainable manner.

Planning is everything

One of the highlights of the new building is the way it is divided into offices and a warehouse. By incorporating large panes of glass and open spaces, the architects succeeded in creating a bond between the two areas. Staff working at their computers on material requirements planning, order processing and returns handling can easily keep track of what's happening on the warehouse floor below. Down in the main part of the building, an aisle that is six meters wide and dubbed the Autobahn separates the storage and processing areas. This latter area handles shipping and receiving as well as returns, while the storage area is divided into sections for small parts and large parts and contains a total of more than 30,000 products. All the tote boxes in the small-parts store are transported automatically, so whatever the workers need is delivered straight to them.

The popularity of a range of products refers to which spare parts and consumables are needed how often. An intelligent stockkeeping control system considers the popularity of products and stores them accordingly. In other words, the more popular a part is, the faster employees can access it – saving valuable time. An optimum blend of automated and manual storage processes allows the logistics workforce to respond flexibly to fluctuations in orders and other changes. In addition to the automated small-parts store with some 23,000 tote boxes for fast-moving parts, the warehouse also features a four-level, manual shelving system for slower-moving items as well as various pallet racks for large and bulky parts.

One thing that made the logistics-center project particularly challenging for everyone involved was the decision to work on all three parts of the project – construction, warehouse fittings, and IT systems – at the same time right from the word go.

For example, workers were already busy assembling the first shelving systems before the building shell had even been completed. In addition, the IT team used simulations to test the SAP software before the physical storage systems were even in place. None of this would have been possible without close collaboration between individual employees and their highly professional, ambitious partners – both inside and outside the company.

No time to stand still

The upper floors of the building house the logistics center's 1,700 square meters of office space. They, too, reflect TRUMPF's spirit of innovation, in particular the firm belief that creativity can flourish only in spaces where employees feel comfortable. Sometimes traditional, standard office spaces are not the ideal working environment, which is why TRUMPF implemented its office workplace concept, or OWC. This approach allows each department to tailor the interior design and furnishing of its offices to its specific requirements. For example, one option is a large open-plan office with self-contained seating areas where people can choose to work quietly on their own. Concentration, creativity and communication can all be fostered by choosing the right type of fittings and furnishings.

Even though the move is over, the logistics center will never be officially categorized as "finished." That's because one of the things that makes this Ditzingen project unique is its continuous striving for optimization. The overarching philosophy is solidly in place, but there are still plenty of little things that will remain flexible and open to change as and when required. And that's the true definition of an ambitious project.

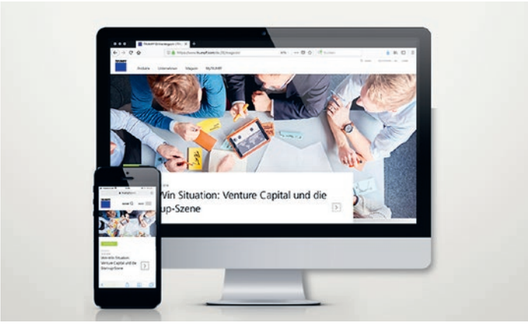
BIZ+

SHORT CUTS

Fascinating facts and exciting innovations.

A Chicago success story

Visitors have been flocking to the TRUMPF smart factory in Chicago. The facility welcomed its 1,000th visitor just four months after opening in September 2017. Customers have come from far and wide to see how the facility operates, including visitors from the United States, Canada, Mexico, Brazil, the UK and Germany. The primary goal of the Chicago smart factory is to advise and train customers on how to introduce digitally connected manufacturing solutions. All the processes in Chicago are digital, from placing an order to designing and shipping the parts.



The new TRUMPF online magazine

TRUMPF is bringing digital transformation to life – and that means embracing digitalization for its corporate communications, too. The company's new online magazine is a great example. This journalistic publication draws attention to topics related to TRUMPF in entertaining ways and is supplemented by multimedia content. The magazine features fascinating articles on subjects such as the longest laser machine in the world, the Blechexpo trade fair and the "robocop of the working world." Of course, it also features plenty of the picture galleries and videos that make online content so appealing. Drawing on topics from all over the world, the new online magazine includes user reports, interviews and specialist articles on the core topics of Industry 4.0, lasers and sheet metal. It also features opinion pieces by experts from the worlds of science, research and industry, as well as useful insights into current projects and events at TRUMPF. Recent pieces have delved into topics such as agile project management, cultural events within the company, venture-capital activities and a remarkable piece of work presented by one apprentice for their final examination. The editorial team posts new articles every week, serving up exciting and interesting content not just to existing customers, but also to prospective customers and job applicants – and anyone interested in technology.

www.trumpf.com/s/magazine

Say hello to the 2000th TruBend 7036

TRUMPF in Austria recently celebrated the production of its 2000th TruBend 7036 machine. This machine was unveiled at the Euroblech trade fair in 2008. Since then, this compact, electric machine has been busy helping users bend workpieces. One of the key benefits of the TruBend 7036 is its highly productive processing of small parts. It also offers a carefully crafted ergonomic design: users benefit from a tiltable control panel and the option of operating the machine sitting down. Ten years after its launch, the TruBend 7036 remains one of the most popular choices in TRUMPF's range of bending machines.

IMAGES: TRUMPF, Steve Hall © Hall+Merrick

Kindergarten innovators

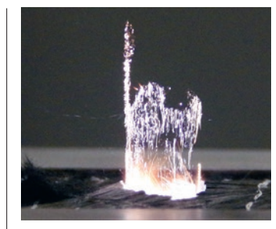
Education is the key to social progress. That's what prompted TRUMPF to sign up as a founding member of the Wissensfabrik, or Knowledge Factory, an initiative that aims to encourage young people to take an interest in technology, economics and IT. The KiTec project – which stands for "children discover technology" in German – caters specifically to kindergartens and elementary schools. As well as providing materials and toolkits to the project groups, TRUMPF also encourages children to put their ideas into practice and design their own structures. The final highlight of the project is a visit to TRUMPF itself, where the children get to experience a real company up close.

Award-winning Industry 4.0

RWTH Aachen University recently awarded TRUMPF two of its Successful Practices 2017 awards. The prestigious university invited companies to participate in two benchmark studies: I4.0 in R&D and Data-Based Services in 2017. RWTH then selected the five most successful companies in each study. TRUMPF impressed the judges in various ways – with its agile working method for developing new products, for example. It also won plaudits for its condition-based services, which make it possible to monitor the condition of laser-beam sources. A total of 171 companies in Germany, Austria and Switzerland competed in the two studies.

Start-up spirit at TRUMPF

Time to think and act like a start-up! Since fall 2017, TRUMPF has been running an in-house entrepreneurship program nicknamed intrepreneurship ("Internehmertum" in German). The goal is to develop new business models that ideally lead to TRUMPF creating in-house or external start-ups. Four teams of two employees have been checking out some exciting new approaches and growing them from concepts into business models. TRUMPF supports the eight innovators by allowing them to use 50 percent of their working hours. It also provides coaching as well as workspaces outside the company's premises. More employees will get the chance to take part in this initiative in 2018.



TRUMPF keeps growing

TRUMPF has acquired the laser manufacturer AMPHOS, strengthening its portfolio of laser products and technologies. AMPHOS was founded in 2010 as a spin-off of RWTH Aachen and the Fraunhofer Institute for Laser Technology ILT. AMPHOS develops and produces ultrashort pulsed lasers with high output power for manufacturing and research applications. Ultrashort pulsed lasers are especially important in electronics manufacturing, where they are used to produce items such as printed circuit boards and displays. At the heart of AMPHOS lasers is a technology known as InnoSlab, which will allow TRUMPF to tap a whole new range of parameters for its ultrashort pulsed lasers.

Aha!

THE POWER OF LIGHT – LASER TECHNOLOGY

What exactly is a laser? The term originated as an acronym for "light amplification by stimulated emission of radiation." A laser is a device that uses this process to emit beams of light. This light is composed of particles of energy called photons. All lasers contain three basic components: an active laser medium (gas or solid), a pump source and an optical resonator, consisting of two parallel mirrors in its simplest form. And what's so special about laser beams? All the photons have the same wavelength, phase and direction of motion. It's these properties that make lasers such versatile tools. They have applications in science and technology, biology and chemistry, metrology, data transmission and storage, and – of special interest to us – in materials processing. This infographic provides interesting information on lasers and how they harness the power of light.

At TRUMPF and around the world: Milestones in the history of lasers

1917 – Albert Einstein establishes a theoretical basis for the laser: under certain conditions, light can force a substance to emit an identical beam of light.

1960 – Theodore Maiman constructs the first functioning laser, consisting of a ruby crystal and a flash lamp.

1964 – Chandra Kumar N. Patel, an Indian electrical engineer, developed the first CO2 laser. It was commercialized as a tool for cutting, drilling and welding metal.

1985 – TRUMPF presents its first self-developed CO_2 laser: the TLF 1000 Turbo Laser Resonator with an output of one kilowatt.

1991 – Haas Laser* presents a study for the first industrial-scale, multi-kilowatt, continuous-wave solid-state laser. It went into series production about one year later.

1999 – TRUMPF presents the first diode-pumped disk laser in a one-kilowatt laboratory version. Today, TRUMPF uses disk lasers as the platform for all its high-power solid-state lasers.

2005 – Advent of the first short-pulse lasers for micromachining widens the range of applications to include microscale structuring, ablation, drilling and cutting.

2013 – Launch of the TruDiode 6006: a compact and energy-efficient direct-diode laser for soldering and deposition welding applications.

Milestones in laser technology: ■ TRUMPF ■ General

* Haas Laser became part of the TRUMPF Group in 1992

ILLUSTRATION: Lisa Altrath, Jan Windauer

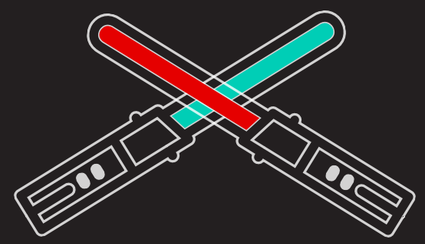
3,400 m

Laser technology raised to the superlative

The world's largest and most powerful X-ray laser is installed in (or more precisely below) Hamburg. The European X-Ray Free-Electron Laser (XFEL) facility is housed in an underground tunnel almost three-and-a-half kilometers long. Its immensely powerful laser source is designed to generate 27,000 ultrashort X-ray flashes per second. It will be used, among other things, to research the dynamics of matter in the solar atmosphere.

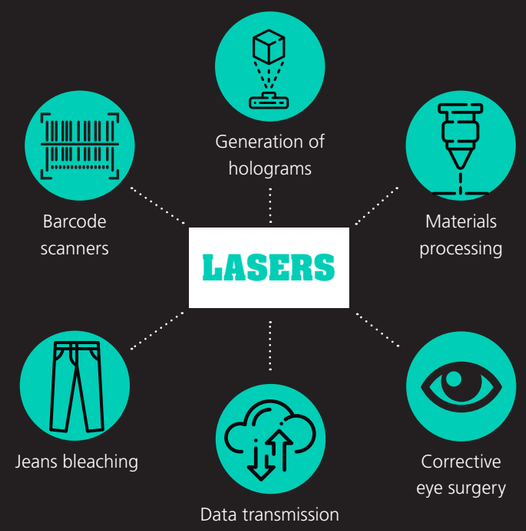
May the Force be with you

We've all seen them in the Star Wars movies. But in real life lightsabers don't exist – yet. Two researchers fortuitously discovered a new form of laser light while blasting photons through a cloud of rubidium atoms. Some of the light particles formed solid matter. The researchers have since been studying this newly discovered interaction between light and matter. Maybe one day lightsabers will arrive in our galaxy.



From jeans to holograms

There are many different types of laser and consequently many possible areas of application – limited only by our imagination. Examples include laser-distressed jeans, corrective eye surgery and the creation of miniature holograms. And who knows what else the future might bring.



Astronauts' service to science

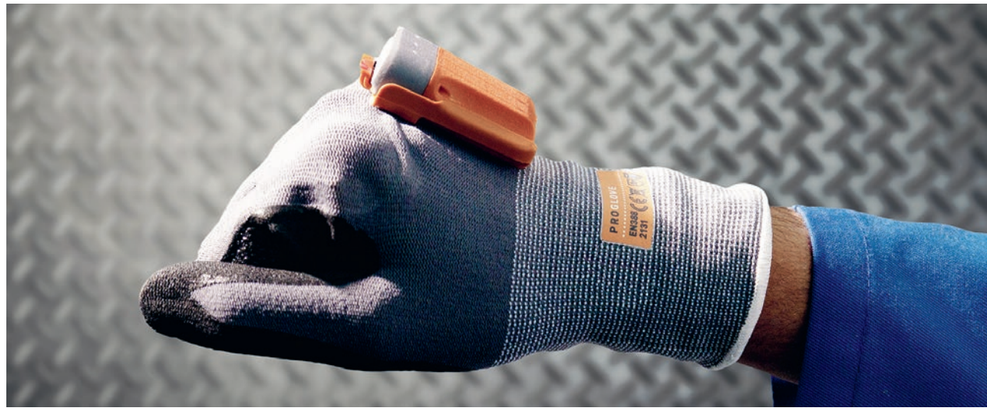
During the Apollo 11 mission in 1969, astronauts placed a retro-reflector on the moon. Its purpose was to bounce back pulses of laser light aimed at it from Earth. By recording these pulses' round-trip travel time, scientists were able to precisely measure the distance between Earth and the moon.

05
FUTURE

INTELLIGENT GLOVES

IMAGES: ProGlove

Industry 4.0 refers to connected manufacturing. But the term also stands for ingenious ideas and **innovative developments,** many of which stem from forward-looking start-ups. Some of these entrepreneurial ventures specialize in finding new ways to make **production more efficient,** faster and more automated. One way to achieve that in the manufacturing and logistics sectors is with **wearables,** which are accessories and items of clothing that are packed with technology. **ProGlove** is one start-up company that specializes in making wearable devices.



Right now, the most popular wearables in industrial settings are smart watches and smart glasses – but ProGlove is in the business of smart gloves. Its latest model of intelligent glove, Katharina, shows the wearer whether they are correctly performing the steps in a process. The company's initial model, Mark, features a built-in barcode scanner that reduces error rates in tasks such as order picking. ProGlove was founded in 2014 by Thomas Kirchner, Alexander Grots, Jonas Girardet and Paul Günther. Since then, they have made a name for themselves with their Mark glove in entrepreneurship competitions and among investors, raising plenty of seed money in the process. But how did these four innovators come up with the idea of an intelligent glove four years ago?

Paul Günther used to host regular tours of a major automaker's factory, showing groups of visitors how the plant operated. That gave him some key insights into how the processes worked, and two things really stood out. First, the importance of getting the sequence of process steps exactly right and, second, the benefits of speeding up processes even just a bit. "Even if you optimize a tiny part of the process, the leverage is enormous. After all, factory workers don't perform an action just once, but maybe 500 or even 1,000 times a day," says Günther. And that's where smart gloves can really make a difference.

By pressing together the tips of their thumb and index finger, the wearer can activate the scanner built into the Mark glove. They no longer have to reach for a scanner every time they need it – and that saves an estimated three seconds per scan. In total, that can save up to 50 minutes over the course of an average workday. Right now, the companies testing the Mark glove are mostly large

automakers, but there are plenty of other potential applications; in fact, any industrial sector that involves logistical tasks could benefit from intelligent gloves. The company is already busy planning its second model, Katharina. Unlike Mark, Katharina features a built-in display that shows the upcoming steps in a process and the tools the wearer will need. The glove uses sensors to detect whether the wearer has picked up the right tool, and gives feedback by vibrating. Katharina benefits new workers in particular, making it easier for them to find their feet on the factory floor and helping them avoid elementary mistakes.

TRUMPF also strives to make production processes more efficient. Customers in the United States have the option of using smart glasses to speed up repairs when they have a technical problem. Once activated, the glasses automatically film exactly what the customer is looking at and stream the video feed in real time to an experienced service engineer. Drawing on virtual information, drawings and videos, they can then solve the problem together. This saves time and money, as the engineer doesn't need to travel to the site and back.

Technical advances are making wearables an increasingly attractive option for manufacturing companies. This is largely so because sensors, wireless technologies and systems are becoming cheaper and more accessible, which makes it easy to incorporate them into manufacturing processes. Perhaps the most important fact of all is that nobody loses their job – this new development provides people with crucial support, but it doesn't replace them.

Experts agree that the human-machine interface is a key aspect of Industry 4.0. By focusing on that facet of the production process, smart wearables offer real potential to enhance collaboration between humans and machines.

The TRUe team asked James Rogowski, vice president of technical services at TRUMPF USA, how wearables are revolutionizing day-to-day work for employees and customers alike.

Why are you making the move to smart glasses?

TRUMPF wants to be close to its customers. That's why we're using this wearable technology, because they provide a virtual means of getting a highly qualified service engineer on site, right there on the customer's factory floor. Smart glasses help us, to help our customers faster and are more practical in an industrial environment. Customers or technicians can perform various tasks hands-free with the guidance of in-house experts. I think wearable technology will be one of the most important technical support tools in the future.

How do smart glasses make life easier for your customers?

Our service engineers use smart glasses to carry out repairs every day. We call those use cases "smart missions". Thanks to the visual information that we receive from the glasses, we're able to solve more cases without sending a service engineer on site, thusly reducing the downtime of our customer's machines. Our inhouse technicians can see and hear, everything in the same way as if we were at the customer's facility. This way we can notice relevant details that may be missed when a customer describes the situation.

How would you sum up the results of your smart missions so far?

We haven't calculated exactly how much time we're saving yet. We're in the process of gathering that data and obviously getting feedback from our customers. But there's no doubt we're repairing machines much more quickly and accurately with this new wearable technology! TRUMPF Service is dedicated to developing new use cases and applications in the future for our customers and service engineers to offer the highest service quality.

IMAGES: ProGlove, TRUMPF

TRULASER TUBE 7000 FIBER

From machine making to the furniture industry, tubes and profiles are ubiquitous in most manufacturing environments. They lend themselves to drilling, sawing, milling and, of course, lasering. The laser introduces new joining methods, makes design work easier, and is extremely fast – especially if you use a solid-state laser. That's exactly what TRUMPF has used in its new TruLaser Tube 7000 fiber which is capable of machining tubes with diameters up to 254 millimeters. We asked Karl Schmid, head of TruLaser Tube product management, to tell us more.

Mr. Schmid, what prompted the development of the TruLaser Tube 7000 fiber?
Many companies, especially job shops, stand or fall by how flexible they are. They must process tubes with extremely small diameters as well as tubes with unusually large diameters. With the TruLaser Tube 7000 fiber, they can cut a wide range of tube diameters with a solid-state laser – and get the job done fast.

So, it's the laser that dictates how fast a machine cuts tubes?
To some degree, yes, but that's not the only factor. Features such as RapidCut and PierceLine make the cutting process even faster. RapidCut is something we developed specifically for our tube-cutting machines. PierceLine is an example of a feature we transferred from laser cutting to laser tube cutting. We've also applied our experience with flatbed laser machines to how we handle cutting data. All in all, the TruLaser Tube 7000 fiber offers significantly higher productivity than comparable machines with CO_2 lasers.

What effect does all that have on throughput time?
Applying it to our customers' typical mix of parts, we can increase productivity by 15 percent solely on the basis of solid-state laser technology. RapidCut can push this figure even higher for certain part geometries. The TruLaser Tube 7000 fiber also includes interfaces that you can use to collect and analyze machine data. That means customers can optimize their production schedule to maximize efficiency, even with smaller batches. The benefits of the system's high speed and open-plan design also extend to low-volume production.

What's the idea behind the open-plan design?
Laser safety is a key issue, especially with solid-state lasers: their radiation is particularly hazardous to the human eye. One way to prevent laser beams escaping from the system is to completely enclose the machine. The problem with a machine enclosure is that it makes it harder for the operator to load and unload tubes and finished parts.That's why we took a different approach. Our high-tech and cleverly designed beam-guard solution offers Class I laser safety, while providing the operator with easy access to the loading and unloading sides as well as the machine's working area. That essentially means you can produce one-off items and short-run batches almost as efficiently as a machine with a CO_2 laser.

The new laser tube cutting machine **TruLaser Tube 7000 fiber**

PierceLine
As soon as the laser has cut all the way through the material, the machine terminates the piercing process. That makes the results more precise and the processing times shorter, and it reduces the thermal load on the inside of the tube.

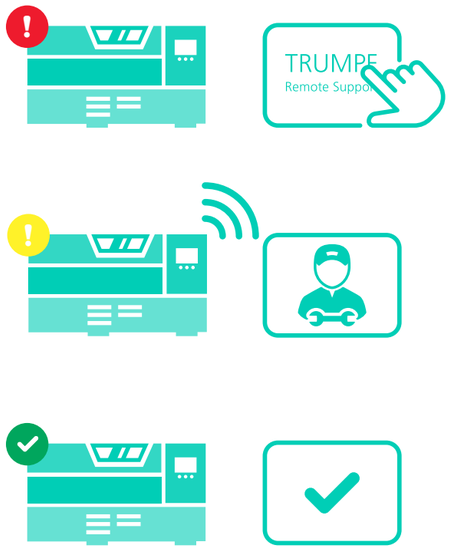
RapidCut
Superimposing the movements of the tube axis and cutting head improves the machine's dynamics by more than fourfold.
This superimposed movement of different axes is the only way to fully exploit the solid-state laser's high feed rates. And it even works for smaller contours. RapidCut represents a major leap in productivity, especially for thin-walled tubes.

IMAGES: TRUMPF

HELP IS JUST ONE CLICK AWAY: TRUMPF REMOTE SUPPORT

The way TRUMPF remote support solves technical problems can almost seem like magic! Digital, secure remote access has been available for all the company's machines since 2010, and it can be retrofitted to virtually any model produced since 2001. Tens of thousands of TRUMPF customers in more than 60 countries already take advantage of this service.

Its biggest plus over a conventional hotline is the ability to diagnose and fix errors faster. Customers don't have to wait for a service technician to arrive, because 80 percent of the malfunctions handled by the TRUMPF remote-support team can be fixed remotely. That increases machine availability and reduces costs. In the event that a technician does have to visit the customer's site, remote support minimizes waiting times by making it possible to identify and order defective parts in advance.



The basic principle behind remote support is simple:

The customer initiates remote-support communication by clicking on the machine's control panel.

Using its built-in Telepresence box, the machine establishes a VPN connection to TRUMPF via the customer's network. This connection is protected by a firewall. A virtual server is then set up to act as a dedicated communication platform for the active session.

Once the customer has granted permission, a TRUMPF specialist connects to the machine's user interface. The customer can then follow all the steps in the diagnostics and debugging process.

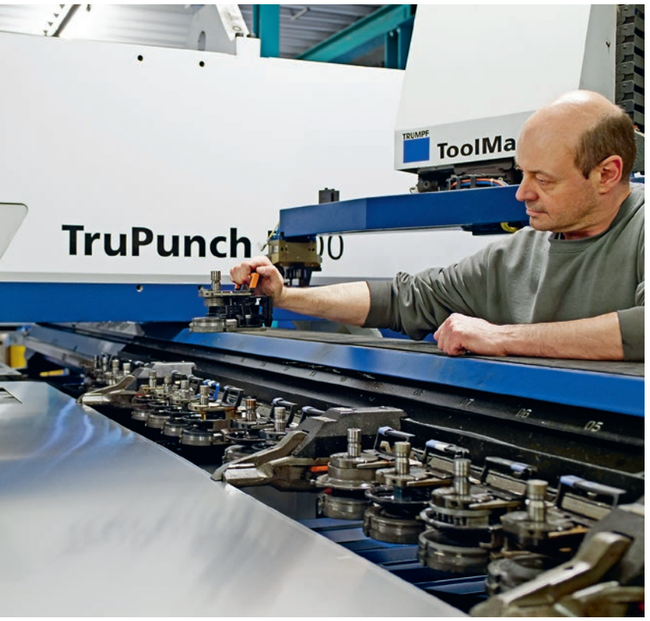
Once the TRUMPF specialist has fixed the problem, all the data on the virtual server is deleted. No records are kept of the session. That makes remote support an even safer form of communication.

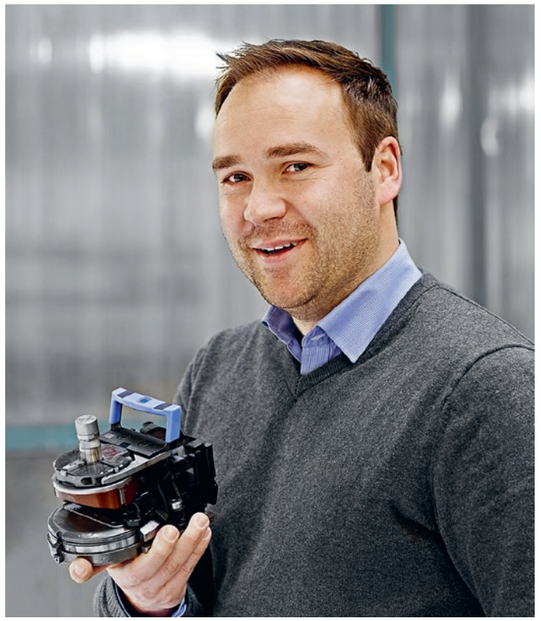
Another machine back in action thanks to TRUMPF remote support!

www.trumpf.info/k5a2rf

MAKING LIGHT WORK OF THINGS

The impressively lightweight RTC tool cartridge weighs just 600 grams – the same as six bars of chocolate – but it's a powerful ally when it comes to punching! Its sturdily braced cassette arms increase the TRUMPF tool cartridge's durability, and a built-in carrying aid makes it easier for operators to transport loaded tools from one place to another. It also comes with different colored clips which make it quick and easy to sort your tool inventory.





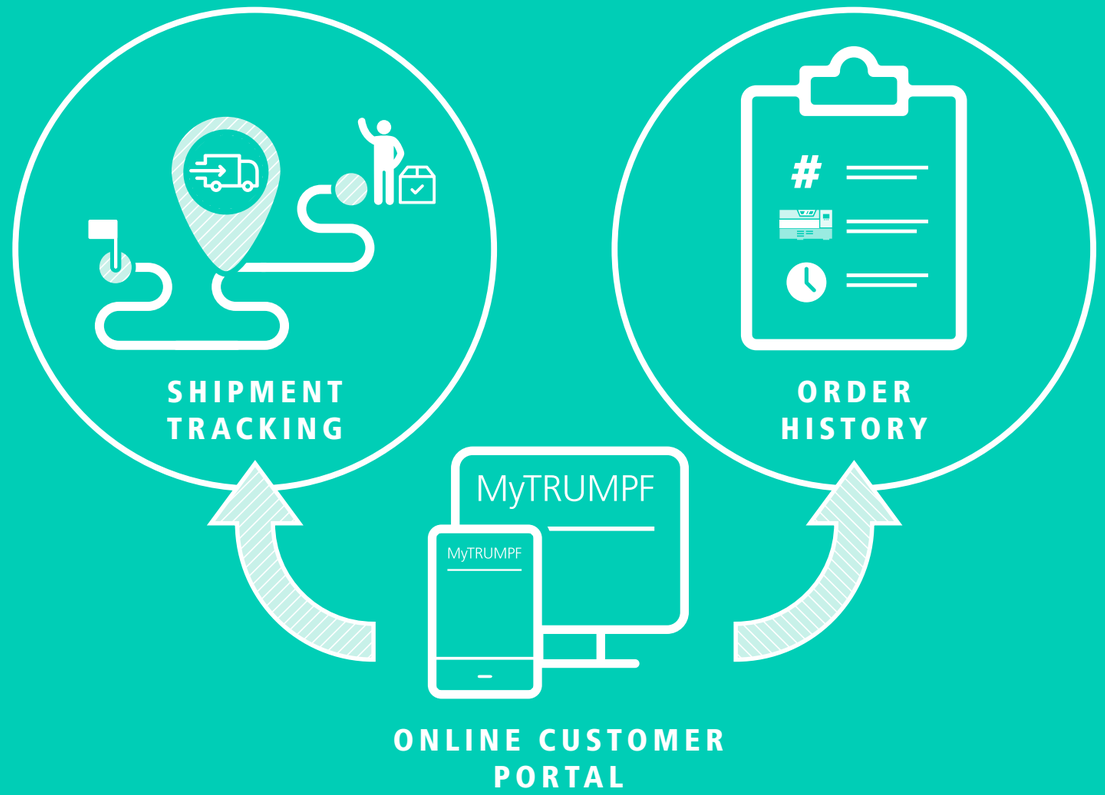
Extremely easy to use – even with one hand. Simon Altvater tried out the RTC cassette and gave it a thumbs-up.

Erich Altvater – managing director of the metalware producer Altvater Metallverarbeitung – and his son Simon experienced those benefits firsthand during a six-month trial period: "The sturdy bracing of the cassette arms makes the tool cassette very stable. That helps it cope with high loads and ensures that tool changes go smoothly. What's more, the RTC cassette is lightweight and easy to handle." Altvater Metallverarbeitung also benefited from the fact that the RTC tool cassette can be fitted to both new machines and older machines with ToolMaster. "We like the fact that TRUMPF doesn't just make improved tools and components for its newest machines. It's good that it still takes older models into account."

IMAGES: Niels Schubert

KEEP TRACK OF ALL YOUR SHIPMENTS

Where's my package right now? And when will it get here? We all occasionally find ourselves asking those questions. Now TRUMPF customers can view all their orders in one place on MyTRUMPF. The system shows not only items ordered through the MyTRUMPF e-store, but also any orders submitted by phone or email.



As well as an overview of recent orders, you can also browse your full order history, which provides useful information on which parts were ordered when. Useful filters allow you to narrow down your search by order number, product category, machine or order date.

The full record of each item gives you a straightforward way of tracking individual shipments. Simply click on the link containing a tracking number and it takes you straight to the website of a carrier such as DHL or TNT.

That keeps everyone in the loop, which is particularly important for fast-track shipments. If a shipment doesn't show up at the scheduled time, it's easy to track it down.

TEC+
SHORT CUTS

Innovations, technologies and future trends.

Online, offline, anytime: TecZone Bend

Programming bending machines is a whole lot easier with TecZone Bend. You can use the software to automatically create a recommended program based on 2D and 3D data – including NC code. TecZone Bend also generates a 3D simulation, including collision monitoring. And you can still adjust bending programs manually. New: TecZone Bend has been added to the TruTops Boost design and programming software package, so users can program bending parts in a matter of seconds – either at their desk or on the shop floor.

Twin pack

In December, a factory in the Czech Republic started working with two new TruBend 8400 (040) machines. The Tawesco job shop runs the two large-format bending machines either individually or in tandem. The TruBend 8400 (040) bends parts with 400 metric tons of press force and a bending length of four meters. Operated in tandem, that provides Tawesco with up to 800 metric tons of press force and a bending length of up to eight meters. This setup is particularly useful in cases where only relatively few production jobs involve extra-long parts. Another advantage is that this twin-pack system doesn't require any special foundations.

All TruBend Series 8000 tandem configurations have a usable open height of 675 millimeters. The machines' crowning and tool-clamping units can easily handle loads of 6,000 kilonewtons per meter. Up to six CNC backgauge axes can be used to position workpieces, while an optical angle-measuring system ensures precise angles. Support brackets and a bending aid can assist the operator with large and heavy parts. The BendGuard safety system covers the entire bending length during tandem operation.

XXL laser welding

The TruLaser Weld 5000 can now weld extra-large parts, too. With the new part positioner, operators can use the linear axis to process parts measuring up to four meters long and weighing as much as 1,000 kilograms. That means the laser can weld large housings and tanks completely automatically. In addition to this new feature, the system can also be equipped with additional positioners for smaller parts. A rotary table can be loaded and unloaded from outside the machine while the welding process is underway in the welding cell. And the flexible rotate-and-tilt positioner makes it easier to weld hard-to-access parts.

IMAGES: TRUMPF, Libor Šťeřba

#05

pARTgallery

Technology transformed into art. Presenting parts in a new light is something we do in every issue of TRUe. This picture shows **bending-tool sensor disks** as you've never seen them before. By isolating this TRUMPF spare part from its normal environment, photographer **Jürgen Herschelmann** allows us to see it from an entirely new perspective.

AMBITION

Climbing to new heights

On June 8, 1924, British mountaineer George Mallory and his climbing partner Andrew Irvine set out on the final stage of their ascent of Mount Everest, which was still unconquered at the time. Mallory, who was an outstanding mountaineer, knew the Himalayas well from two earlier reconnaissance expeditions. The one challenge that still beckoned was to be the first to scale the highest mountain on Earth. When asked why he wanted to attempt this dangerous ascent, Mallory famously quipped: "Because it's there."*

I've always been impressed by this attitude: doing things for their own sake. Gathering all the strength you can muster to achieve a respectable goal. Giving it your best shot, even when the changes of success are slim. George Mallory, for example, probably never reached the summit of Everest. It is thought he was 800 vertical feet away from his goal when the fatal accident occurred.

Mallory's attitude is the exact opposite of a worrying but popular trend in modern society. Casting shows such as "America's Next Top Model" and "Star Search" lead people to believe that you can take an easy shortcut to the top in life. Such programs imply that success doesn't require ambition, talent or dedication. All it takes is the willingness to take part in a potentially embarrassing spectacle for a few hours, seen by millions of TV viewers.

But ambition tends to automatically trigger honor and distinction. These two epithets are attached to people who do something truly worthwhile, battling against all odds to achieve something remarkable. The prolific inventor Thomas A. Edison once said that "Genius is one percent inspiration, ninety-nine percent perspiration." In other words: It takes a whole lot of hard effort to reach the top.

I recently read the amazing story of Christoph Keller, who ran a successful business in Frankfurt as a graphic designer and art publisher. Keller moved from the city to the country with his family to seek a more peaceful way of life. By a happy coincidence, the property he bought on the shores of Lake Constance included distillery rights that would have lapsed if Keller didn't make use of them. So, despite being a novice in the art of distilling alcohol – he describes himself as "a sensualist, not a drinker" – he threw himself into this new project, reading almost everything that had been written about the subject since the 16th century. He studied and experimented and tasted the results. This helped him to iron out the teething problems, optimize recipes and refine his process. Day in, day out, month after month – simply because he wanted to become a master distiller. His inexperience was an advantage, because he had to work it all out for himself, without following anyone else's rules.

Less than ten years after firing up his pot still for the first time, Keller received the ultimate accolade of being named one of world's best distillers according to the Gault Millau gourmet guide. Keller's modest response – "I just happened to fall into this profession" – is a huge understatement. In fact, it was his stubbornness to prove himself as a beginner in the art of distillation that almost inevitably made him one of the best in the field.

An isolated case of happenstance? No way. On the contrary, Keller's determination, and that of other people like him, is what drives our economic engine. His example shows that it is worth the effort to improve on what other people do – with benefits that extend beyond the instigator of such changes. In the end, everyone profits from more effective medications, more eco-friendly vehicles and, why not, more aromatic pear schnapps. Or, in the words of the exceptional entrepreneur Philipp Rosenthal: "When you stop improving, you stop being good."

This by no means justifies one-sided "winner takes all" attitudes, nor sacrificing everything to a career that involves years of mindless running in the hamster wheel before being promoted. True ambition means working toward worthwhile goals, pursuing a long-term vision and having the confidence to change course when necessary.

Oskar Simon

** This quote was subsequently often attributed to Edmund Hillary, who in 1953 – accompanied by Tenzing Norgay – was the first to reach the summit of Everest.*

FARSIGHT-EDNESS

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