# TRUe

THE MAGAZINE FOR SHEET METAL EXPERTS



## 08# 2019 TRUST



TRUMPF


IMAGE: Unsplash

Plunging through **loops and sudden, steep descents** at speeds of up to **200 kilometers an hour,** rollercoasters are not for the faint-hearted. Business people, too, have to **keep a cool head** and trust that order will eventually be restored when faced with the ups and downs of turbulent economic times.

Fire services are held in high regard **all around the world.** According to a study by the German Association for Consumer, Market and Sales Research (GfK), people trust the fire service even more than doctors or the police. Above all, firefighters need to know they can **trust each other. Teamwork is more important here** than in almost any other job. Great things can be achieved through trust and cooperation – and **not just when it comes to putting out fires.** ■

IMAGE: GettyImages

Babies **develop an important capacity in their first year of life,** something psychologists call **basic trust.** According to child psychologist Erik H. Erikson, infants acquire a basic sense of who they can and cannot trust. If children fail to develop this ability, it can have serious consequences, making it difficult for them to open themselves up to others later in life. **Does that mean that what people will achieve in life is fixed from infancy?** The ability to establish trust in others has paved the way to success for many an entrepreneur.

IMAGE: GettyImages

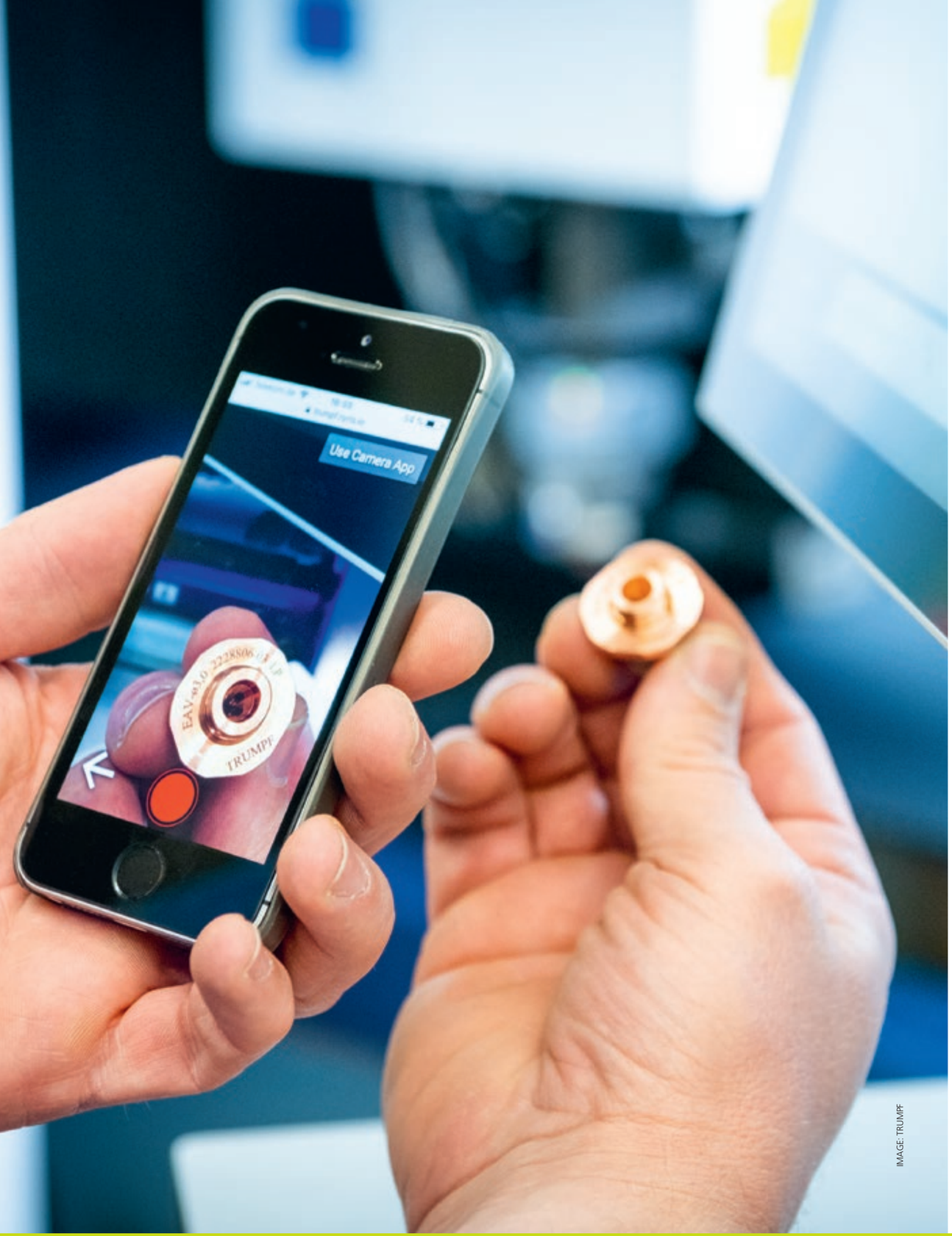


IMAGE: TRUMPF



**Artificial intelligence** doesn't need to be complicated – especially not for users. A **new application** offers a fast and straightforward way to **identify consumable parts using a cell phone.**

At TRUMPF, we are always open to new technologies. We have a great mix of young people who come to us with new ideas and methods and more experienced staff who have a deep understanding of our customers' needs. We always make decisions as a team – and that often sets us on the right path. This approach may sometime take a little longer, but fortunately we have the staying power of a family business, so giving up is not an option.

These are the key things we harness to shape the changes we want to see. In the case of TRUMPF, that means transforming ourselves from a machine maker into a solution provider. Our machines form part of a production process we view holistically – and our goal is to help you develop and improve that process by realizing its untapped potential. In some cases this can lead to productivity gains of 30–50 percent.

To achieve these gains, we rely on the process excellence acquired through our Synchro system. Our teams of consultants have spent more than 20 years implementing lean production both in our own factories and at our customers' and suppliers' sites. This has proved to be the perfect basis for exploiting the opportunities that digital connectivity and artificial intelligence have to offer.

Transformation is always something of a future gamble, a choice we make to trust in our experience, our instincts and our ability to develop the skills we need. There was a time when Industry 4.0 seemed like little more than a theoretical construct, but now it has become a tangible component of numerous compelling solutions. Our Active Speed Control sensor system, Track&Trace indoor positioning system and fully automated TruLaser Center 7030 laser cutting machine are just some current examples of how the autonomous factory is no longer just a vision.

If our gamble pays off, then you will benefit, too. Because we never lose sight of the fact that our success ultimately depends on the success of our customers.

I very much hope you enjoy reading this issue of TRUe.

**YOURS, HEINZ-JÜRGEN PROKOP**
Chief Executive Officer for Machine Tools

TRUe

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*#08/2019*

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## ...in Vriezenveen

TRUMPF demonstration and test centers don't necessarily have to be located at a TRUMPF site. In Holland, the company is working with AXOOM and GS Metaal to find new ways to help people experience digitalization. And it all began in the unlikely setting of a gourmet restaurant.

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## ...in Trảng Bom

San Lim Furniture built its success on the back of wooden furniture. Now company president Tony Sulimro is relying on a new material to keep the business riding high. He told us how the installation of a new extraction system breathed new life into the company.

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Never mix business with pleasure – unless you are the Wherrell family, of course. TRUe discovered how they get along so well, and how go-karting helps keep them on track.

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He transformed TRUMPF from a small Swabian company into a global player and market leader. Berthold Leibinger died in October last year at the age of 87. We look back on a life full of courage, vision and a truly enterprising spirit.

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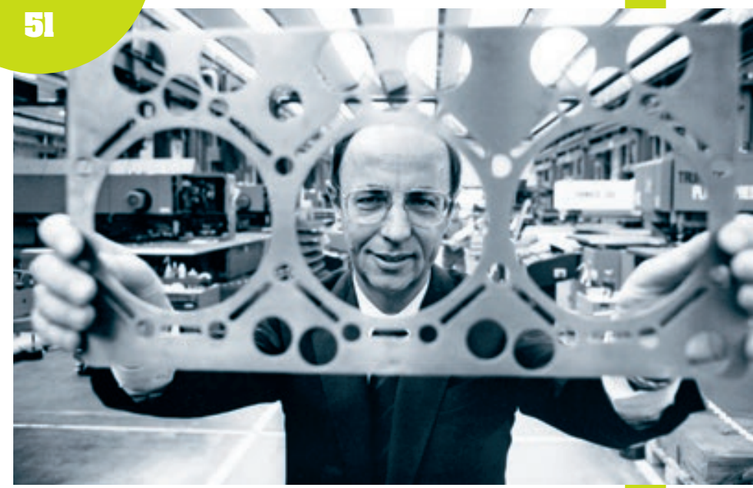


01

NETHERLANDS

*Trust in Vriezenveen*

# BEST OF FRIENDS

Jan and Arnold from **GS Metaal** may be rookies in the world of **sheet metal fabrication,** but they are **old hands** when it comes to taking courageous entrepreneurial **decisions.** As firm believers in the power of data, they boldly chose to embark on an unusual experiment.

IMAGES: Frederik Dulay-Winkler


"We tend to stick to first names in Holland, is that okay with you? I'm Jan and this is Arnold, welcome to GS Metaal!" First names are fine by us. Both men turn up to the photo shoot in a white shirt and jeans without having arranged anything in advance. "We obviously spend too much time together," Jan quips. Once the CEO of a large company that produces coils, fifty-five-year-old Jan van de Maat describes himself as an entrepreneur. His investments have typically been directed toward industrial companies – and his acquisition of sheet metal fabricator GS Metaal has opened his eyes to a whole new industry. His business partner Arnold Hofmeijer is two years younger than him and spent more than three decades working for a major bank before he fulfilled his dream of branching out on his own. The two Dutchmen first met on a trip to Malawi in 2004. Since then, they have seen each other regularly, mostly in good restaurants, something they are both passionate about. It was over one of these dinners that the topic of GS Metaal came up. Jan had recently bought the company – and by the time dessert was served Arnold found himself taking on a new position as managing director.

Jan is a visionary, and his enthusiasm is infectious. Rather than discussing contracts, he prefers to trust his gut instincts. And when he invests in a company, he puts his heart and soul into it. In the case of GS Metaal, it hasn't taken him long to get to know all the employees, including their hobbies and favorite soccer teams. Arnold is the realist of the pair, someone who listens carefully and then transforms Jan's innovative ideas into concrete plans. He takes an analytical approach, not least due to his many years of experience as a banker. "When I started out, I didn't know anything about sheet metal fabrication. I asked countless questions to learn everything I needed to know. That really helped!" Jan and Arnold complement each other perfectly – and their mutual trust has led to fruitful collaboration.

## A development partnership with a future

Determined to modernize every aspect of GS Metaal, Jan and Arnold approached AXOOM in early 2017. The TRUMPF subsidiary is working on a platform solution for machine makers that increases the transparency of machine data and offers access to a range of apps from the production environment. TRUMPF is one of the partner companies that provides its customers with various machine apps through this platform.

IMAGES: Frederik Dulay-Winkler

> " We were determined **not to digitalize just for the sake of it**, but rather to take a **logical approach**. We work closely with our 40 employees to achieve that. "
>
> Arnold Hofmeijer, managing director GS Metaal

"It was quite an adventure at first because neither we nor GS Metaal knew exactly where we were heading! But Jan and Arnold were very open-minded, courageous and keen to try things out. We trusted each other right from the start," says Daniel Gottschalck from AXOOM. Arnold nods in agreement: "AXOOM is a fairly new company that still has a real start-up feel to it. But at the same time they can call on support from TRUMPF – a major global player with all the experience they need." TRUMPF's TruConnect portfolio enables it to contribute dedicated digitalization solutions for sheet metal fabrication.

## Trust is not a one-way street

As well as digitalizing production, GS Metaal, TRUMPF and AXOOM also collaborated on the creation of what they call an Experience Center – a unique concept both in the Netherlands and further afield: "Unlike traditional showrooms, we test and demonstrate innovative Industry 4.0 concepts in our own production facilities, always looking above and beyond the sheet metal fabrication process itself." Starting in late spring, GS Metaal will be welcoming customers from a range of industries.

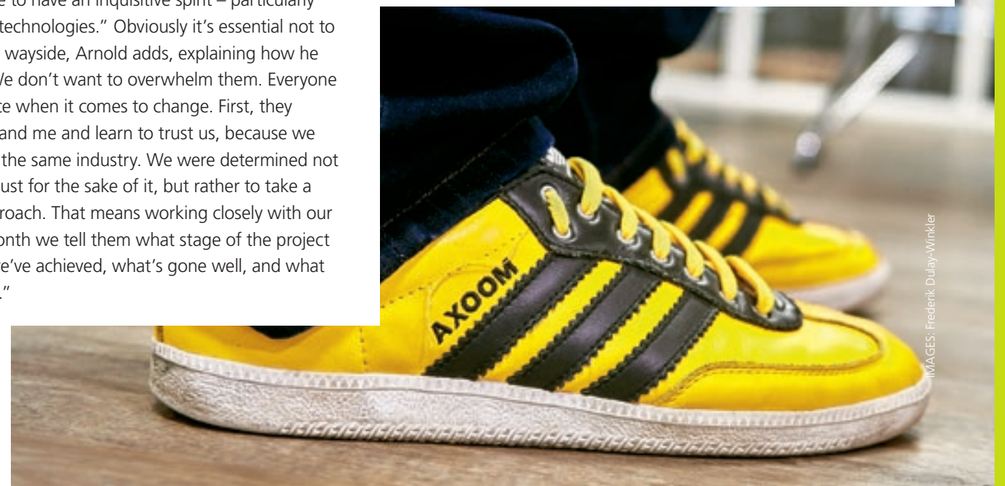
GS Metaal has transformed itself – not overnight, but step by step. The sheet metal fabricator is still not entirely digitalized, but it's certainly on the right track. The machines are connected to the AXOOM cloud and a number of other systems have been integrated. Now the two Dutchmen can use the machine data to improve their shop floor management. And they also have access to the expertise of the TruConnect and AXOOM partners should the need arise. "You can't achieve digitalization at the touch of a button for typical mid-sized companies such as GS Metaal. That would be unrealistic. What matters most is making the decision to embark on that journey," says Gottschalck.

The Dutch company will be opening up its shop floor to offer a wealth of unprecedented insights. "It's a huge sign of trust for a customer to set up this kind of demonstration and test center. We often face the challenge of how to really bring to life what we offer, especially in digital projects where the results are essentially invisible, so the Experience Center is the perfect solution," says Gottschalck.

## Avoiding digitalization for the sake of it

The Netherlands has a reputation for being highly innovative – and GS Metaal is no exception. Jan explains why the Dutch are so open to new things: "As a seafaring nation, we have always been connected to the rest of the world. Even today, we speak lots of different languages and continue to have an inquisitive spirit – particularly when it comes to new technologies." Obviously it's essential not to leave employees by the wayside, Arnold adds, explaining how he gets them involved: "We don't want to overwhelm them. Everyone moves at their own pace when it comes to change. First, they had to get used to Jan and me and learn to trust us, because we didn't even come from the same industry. We were determined not to digitalize randomly, just for the sake of it, but rather to take a consistently logical approach. That means working closely with our 40 employees. Each month we tell them what stage of the project we've reached, what we've achieved, what's gone well, and what could have been better."

> " We have never had this kind of **demonstration and test center** at a customer site before. So it means a lot to us – and it's a remarkable **sign of trust.** "
>
> Daniel Gottschalck, AXOOM




IMAGES: Frederik Dulay-Winkler

01

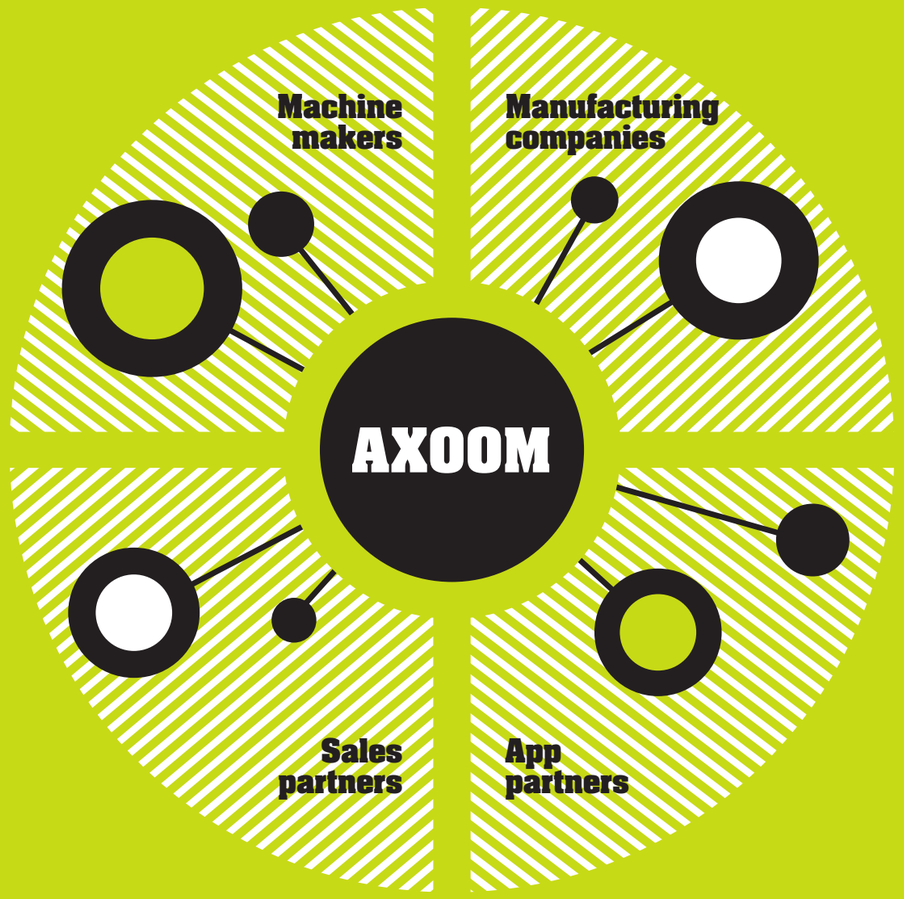
*Key facts:*

# AXOOM GmbH

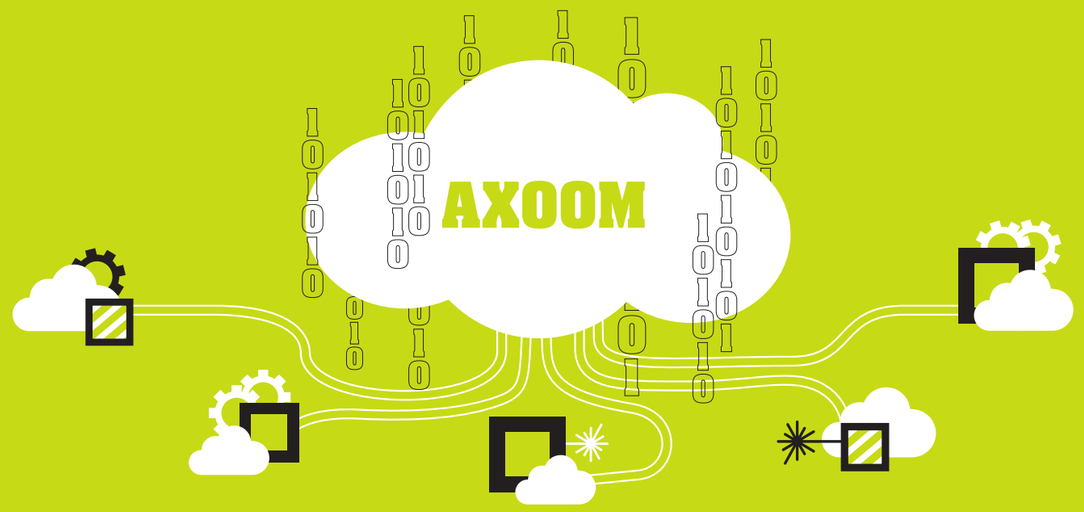
AXOOM is the **IIoT platform** (IIoT = Industrial Internet of Things) from the TRUMPF stable. It has been set up not **only for TRUMPF and its customers,** but also for other machine manufacturers.

*In brief*

# Smart.Forward. AXOOM.




TRUMPF and AXOOM are currently collaborating on a project to move machines into the digital realm, specifically through five machine apps. The apps evaluate data related to the machine and tools and make the results available to users. AXOOM provides infrastructure for processing the data. Virtually all new 2D laser, punch laser and bending machines come with a digital interface that makes it easy to connect them to the AXOOM cloud.

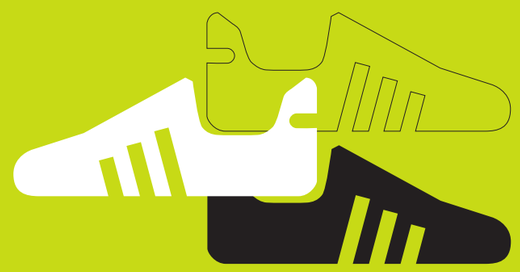



## The AXOOM platform

The AXOOM ecosystem offers industrial companies an open operating system that gathers data from machines and provides apps designed to optimize the operation of these machines and the associated value chain. The platform is cloud-based, making it easy for users to monitor and analyze an entire shop floor of machinery over the internet. Apps provided by AXOOM, TRUMPF and other platform customers are used to enable this transparency. The platform has been conceived as an open ecosystem that brings together everyone involved in the production process. Machine manufacturers can use AXOOM technology to offer smart machines and develop digital business models. Manufacturing companies can increase their transparency and productivity, while app and sales partners can benefit from the platform's marketplace potential.

## Right down to their shoes:

AXOOM's corporate colors of black, yellow and white are not only featured on their website, but also on their specially made shoes.



## About the customer

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## Machinery

- TruLaser 3030 fiber incl. LiftMaster and STOPA
- TruLaser 3030 incl. LiftMaster
- TruBend 5170
- TruBend 5230

IMAGES: Ehrin Macksey, Unsplash

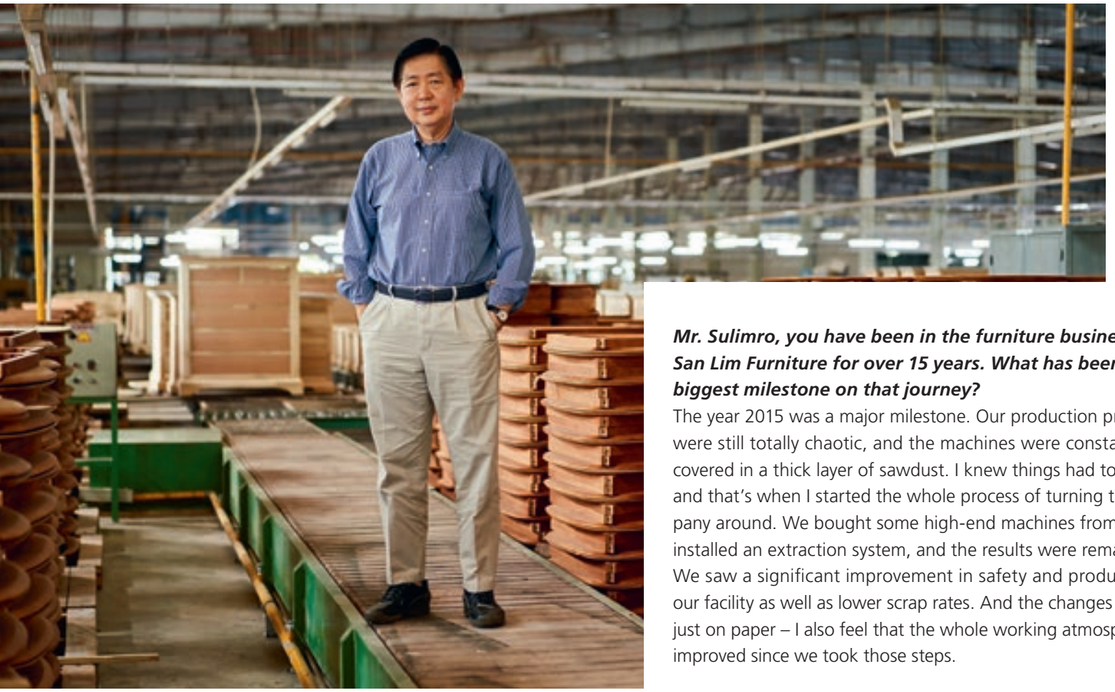
02

VIETNAM

*Trust in Tràng Bom District*

# KEEP IMPROVING!

A woody fragrance permeates the **San Lim Furniture** warehouses in Vietnam's **Trảng Bom District.** Things will soon be changing, however. Company president **Tony Sulimro** is determined to expand his business by moving into metal – and putting his trust in TRUMPF.



**At the heart of the action:** Tony Sulimro transformed his company and restored his pride in the factory.

***Mr. Sulimro, you have been in the furniture business with San Lim Furniture for over 15 years. What has been your biggest milestone on that journey?***
The year 2015 was a major milestone. Our production processes were still totally chaotic, and the machines were constantly covered in a thick layer of sawdust. I knew things had to change – and that's when I started the whole process of turning the company around. We bought some high-end machines from Germany, installed an extraction system, and the results were remarkable. We saw a significant improvement in safety and productivity at our facility as well as lower scrap rates. And the changes weren't just on paper – I also feel that the whole working atmosphere has improved since we took those steps.

***Your company specializes in furniture. Was that always the case?***
Yes. We are furniture experts and have continued to expand that core competence over the years. Most of our chairs, beds and shelf units end up in people's homes, but one of our plans for the future is to kit out four and five-star hotels with our furniture, too.

***That sounds ambitious. Will you still be focusing on wooden furniture?***
Yes and no. Wooden furniture has always been our primary line of business. But, right now, we're building a second facility not far from our main site, where we will be making furniture out of metal. It was when we were searching for the right machines to work with metal that we came across TRUMPF.

***Why choose metal?***
Times are changing, and we need to change with them. Flick through any furniture catalogue and you'll see lots of plastic and metal as well as wood. We want to tap into that market so we can offer our customers a broader range of products in future.

> **" Simple metal structures** are in high demand. I think that the majority of our business in the future will come from metal products. "
>
> Tony Sulimro, president of San Lim Furniture

***You've pledged to make the lifestyle we enjoy in the West accessible to people all over the world. What part does TRUMPF play in that?***
Simple metal structures are in high demand all over the world, from London to New York. I think our main line of business in future will primarily consist of those kinds of products. We want to make sure we have the right partner on board to take that step, and TRUMPF fits the bill. It's essential that the products we make meet the quality standards of the countries we export them to – and right now most of our furniture goes to the US.

IMAGES: Ehrin Macksey, Unsplash

> **“ Obviously it’s a risk to make such a big investment,** but I think that with TRUMPF’s support we can **take that risk together** and overcome it. **”**
>
> Tony Sulimro, president of San Lim Furniture

***You’ve invested in four new machines that can handle bending, tube cutting and laser welding. It’s the first time TRUMPF has installed some of those machines in Vietnam. What led you to place your trust in this new approach?***
The way I see it is that new investments open up new opportunities. Obviously it’s a risk to make such a big investment, but I think that with TRUMPF’s support we can take that risk together and overcome it. Sometimes it’s important to trust in a new approach to keep things moving forward.

***Is that your recipe for success?***
You could say that, yes. We’re always striving to improve and looking for ways to make our customers even more satisfied. I would say that my personal motto of “keep improving” sums it up nicely!

IMAGES: Ehrin Macksey, Unsplash

02

*Key facts:*

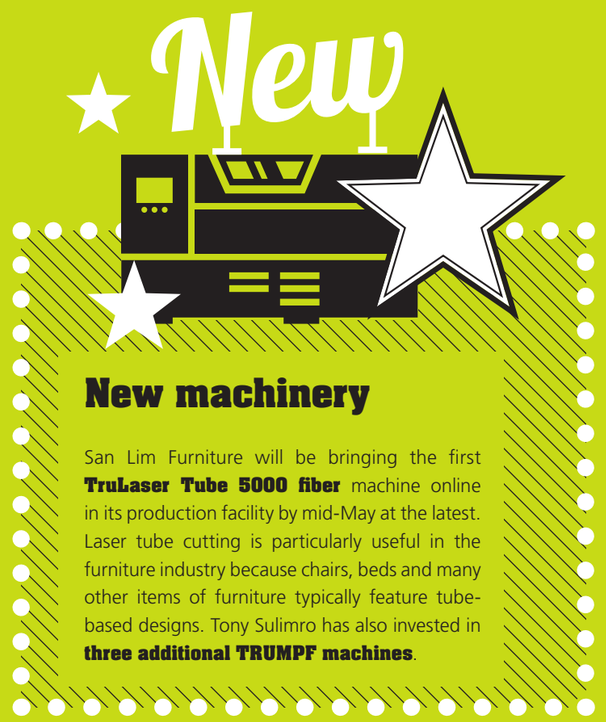
# Background on San Lim Furniture

**San Lim Furniture** sells wooden furniture to customers all over the world. Occasionally that prompts the company to **forge new paths** and invest in new machinery. Here we take a behind-the-scenes look at what may well be Vietnam’s most cutting-edge **furniture specialist.**

*In brief*

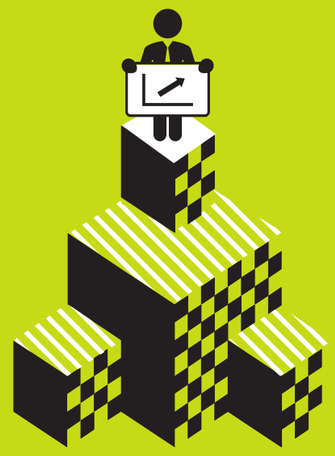
# Today and tomorrow: San Lim Furniture

Based in South Vietnam, San Lim Furniture specializes in the production of wooden furniture. The company just keeps on growing – and forging new paths in the process. Read on for some fascinating facts and figures about a company that makes people's home furnishing dreams come true.




## New machinery

San Lim Furniture will be bringing the first **TruLaser Tube 5000 fiber** machine online in its production facility by mid-May at the latest. Laser tube cutting is particularly useful in the furniture industry because chairs, beds and many other items of furniture typically feature tube-based designs. Tony Sulimro has also invested in **three additional TRUMPF machines**.



## Step by step

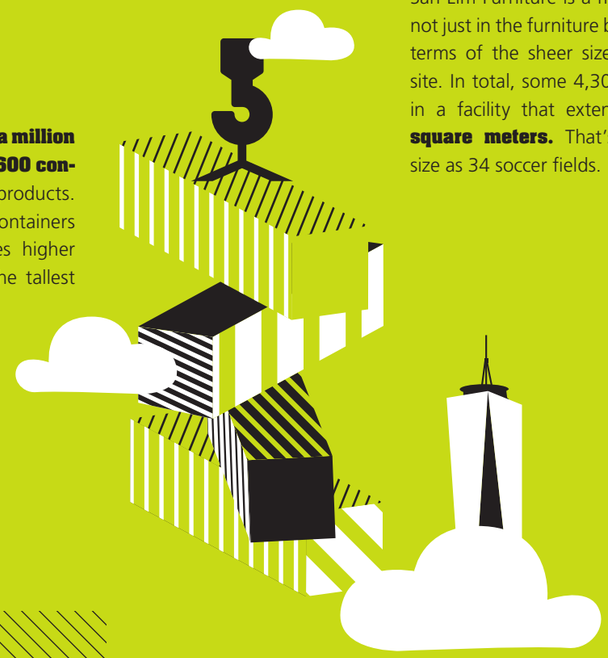
Tony Sulimro founded San Lim Furniture in 2002. In 2015, the company's president decided to **modernize** the entire production process. To achieve this, the company purchased top-quality, high-tech machines from Germany. The next big step came in 2019 when the company expanded its offerings to include **products made of metal** and plastic alongside its wooden furniture.


## A major league player

San Lim Furniture is a major league player, not just in the furniture business, but also in terms of the sheer size of its production site. In total, some 4,300 employees work in a facility that extends over **240,000 square meters.** That's about the same size as 34 soccer fields.

## Aiming high!

The company produces more than **a million items of furniture** a year. It uses **600 containers** a month to export its products. Piled on top of each other, the containers would form a tower three times higher than One World Trade Centre, the tallest building in New York.



## From A to Z

The Vietnamese furniture manufacturer's **range of products** includes tables, chairs, beds and cupboards.

## Lighting the way

Sustainability plays an important role at San Lim Furniture. Over **80 percent** of the light fittings the company uses are **LEDs**. As well as lasting longer, they are also far more energy-efficient than conventional light bulbs.

## About the customer

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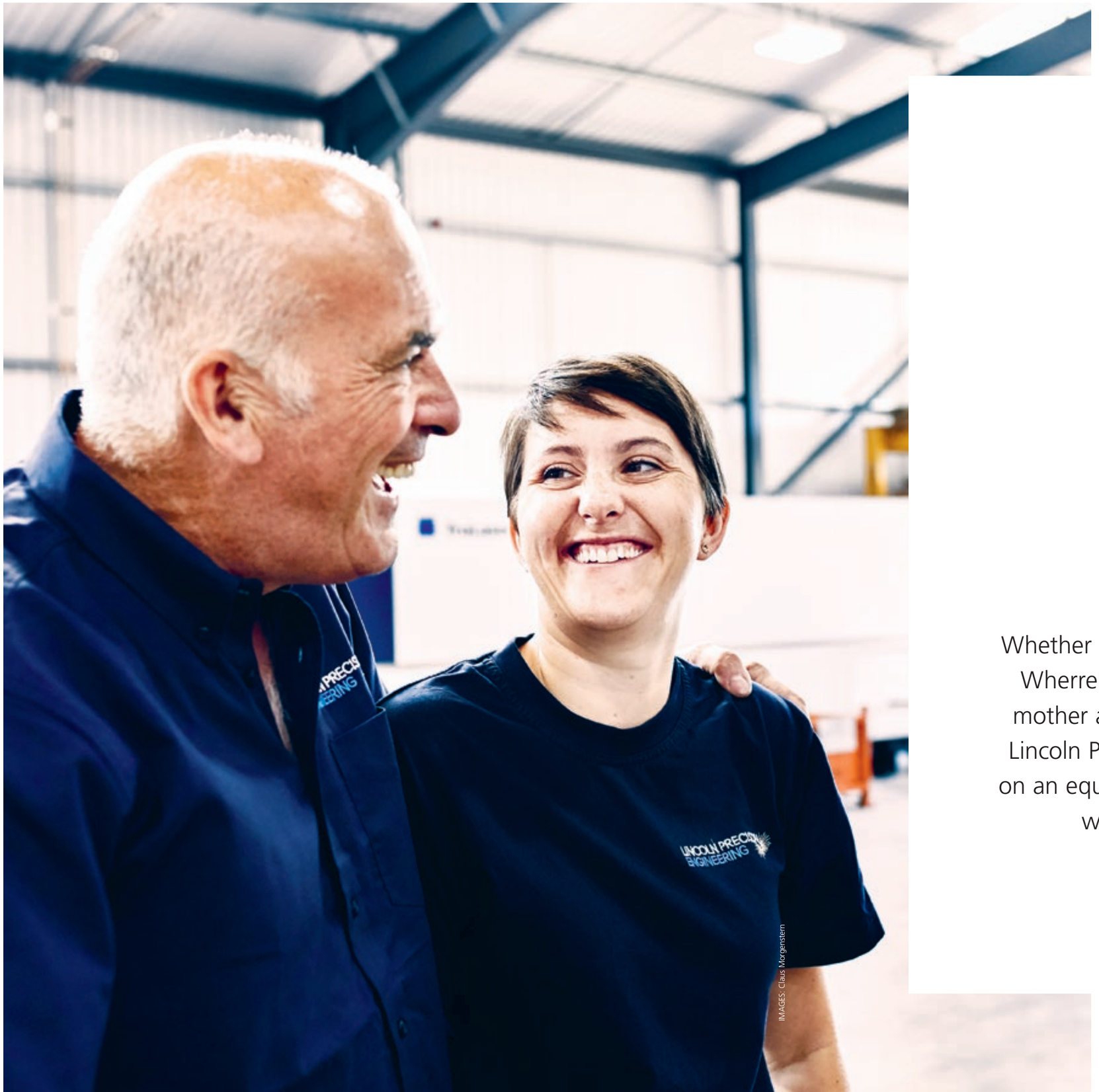
Song Trau Commune,
Trảng Bom District, Vietnam

Phone: + 84 251 3923 188
Email: info@sanlimfurniture.vnn.vn

## Machinery

- TruLaser Tube 5000 fiber
- TruLaser 3030
- TruLaser Weld 5000
- TruBend 3100




IMAGES: Claus Morgenstern

03

ENGLAND

*Trust in Lincoln*

# WE ARE FAMILY

Whether in their **private life or at work,** the Wherrell family sticks together. The father, mother and three children run the company Lincoln Precision Engineering collectively and on an equal footing with each other – and the whole thing is based on **trust.**

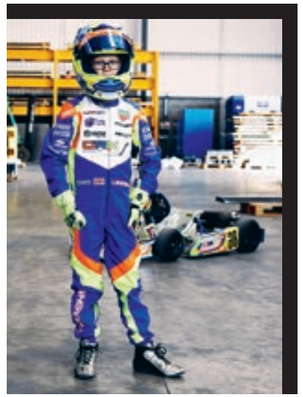

Trevor Wherrell is a friendly, down-to-earth man who, like many of his fellow Englishman, loves to make a joke – even if it comes at his family's expense! During our interview he points to his son Craig, who has a cold, and asks if we can fix his red nose by editing it out of the photo later. "If not, then I reckon it's better to get a photo of just me and my lovely daughter," Trevor quips. His family is the most important thing in his life, just as it was for his own father, who founded Lincoln Precision Engineering 30 years ago. When he died, Trevor initially took the reins of the company on his own. But that didn't last long, because Trevor was adamant that the only logical step was to get his family on board and split the company between them. Today, he, his wife Janice and their three children Aron, Craig and Megan each own an equal share in Lincoln Precision Engineering – and Trevor is confident it was the right decision. He believes that family fosters a bond of solidarity and, above all, trust. "I wanted to be their partner, not their boss. And I was determined to turn Lincoln Engineering back into a family business, just like it was with my father and me."

## Success based on trust

His sons Aron and Craig have introduced new, modern ideas to the company, including automated laser cutting that the two of them have established as an integral part of the business. Trevor greatly values their input and has no problem delegating responsibility. "Mutual trust is what makes a family work. We all know we can rely on each other," Trevor says proudly. Each member of the family owns a stake in the company and oversees a specific part of the business. Aron and his father are company directors, while Craig is responsible for production and Megan heads up the administrative side.

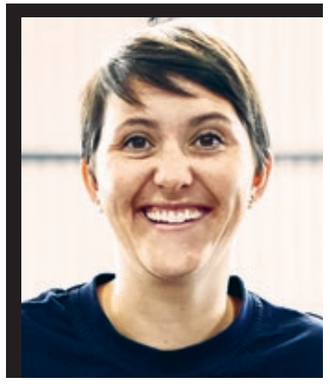
## Time to grow

Lincoln Precision Engineering specializes in manufacturing products for the agricultural, motorsport and construction sectors. The company has landed an increasing number of projects over the past couple of years. That, in turn, led to increases in headcount and machinery, leaving their old factory bursting at the seams. "We were constantly treading on each other's toes," says Trevor. A new factory was the obvious solution, and they were determined it should be exactly right, as his son Aron explains: "An architect's firm planned and built the facility to our exact specifications and requirements. We were involved in the design process – and we're delighted with the results." The company's new site came online in May 2018. It is 50 percent bigger than the old factory, so there is plenty of space for more employees and machines. "As soon as we moved in, we purchased two new TRUMPF bending machines. And we're already looking for new people," adds Trevor.

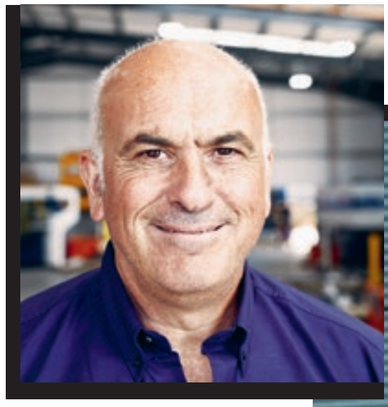


Trevor's grandson **Lewis** is one of England's best young kart racing drivers. His family uses the TruBend 5170 to build his go-kart.

**Craig** is a qualified CNC programmer and is responsible for managing the shop floor.

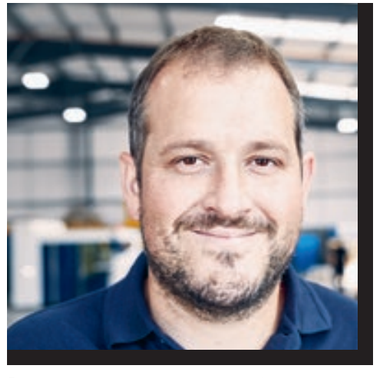


**Megan** makes sure the family keeps its admin under control. She manages the office and takes care of the finances.

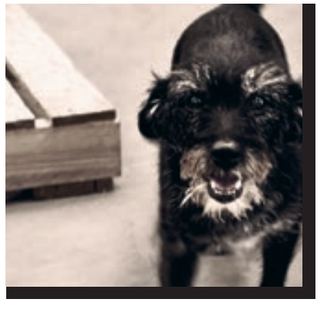


Even at work, managing director **Trevor** is surrounded by the people he trusts the most – his family.

Wife, mother and grandmother **Janice** helps Megan in the office and is the heart and soul of the family-run business.



**Aron** is an expert not just in sheet metal fabrication, but also in laser machines.



**Bonnie** isn't strong enough to bend metal sheets, but luckily there are machines to do that!

IMAGES: Claus Morgenstern

> “ I wanted to be **their partner, not their boss.** And I was determined to turn Lincoln Engineering back into a **family business.** ”
>
> Trevor Wherrell, managing director of Lincoln Engineering

He is convinced that Lincoln Precision Engineering owes its success to the family having a shared goal. “We’re basically always here. We work around the clock,” he jokes. In reality, the Wherrells understand the importance of taking time off but, even then, they spend much of it together. They all live close to the company, none of them very far from the 2,000-year-old town of Lincoln on the east coast of the British Isles. The family often meets up at the weekend to support Aron’s nine-year-old son Lewis, who is a keen go-karter. He shares more than just his nationality and first name with the Formula One world champion Lewis Hamilton. Both of them took an interest in motorsport from an early age and quickly made a name for themselves. The youngest Wherrell is now one of England’s most successful racing drivers in his age bracket. Trevor is proud of his grandson and shows us photos and videos of training sessions and races. What makes it even more special is that the family is Lewis’s pit crew – and that they build his go-kart themselves on their TRUMPF machines.

## Powerful machines for a successful company

Lincoln Precision Engineering started out as a machining company but has since built up an excellent reputation as a sheet metal fabricator. It all began with a second-hand laser machine, but the family quickly realized that long-term success would require a machine that offered consistently high quality. An internet search led them to TRUMPF and, seven years ago, the family invested in its first TRUMPF laser cutting machine. Since then, they haven’t even considered switching to another machine maker: “We would inevitably be disappointed because we are completely satisfied with TRUMPF and know we can trust our local TRUMPF sales rep. So why change?” says Trevor.

## Handing the baton to the next generation

The English company is determined to keep growing. Over the next five years, 58-year-old Trevor intends to gradually step back from the business and hand over even more management responsibility to his three children – not an easy decision for someone who enjoys his work as much as Trevor does: “I’m glad my family is already involved in running the company because that makes it much easier to hand over the baton to the next generation.” The main task right now is to recoup the investment in the new factory, which was a major step forward for the company and its 24 employees. But this is a family that knows its strengths – and that understands the importance of working together.

IMAGES: Claus Morgenstern

03

*Key facts:*

# TruLaser Series 1000

For a small company, **laser cutting** can be a **big step.** Trevor Wherrell from Lincoln Precision Engineering once faced the decision to invest in the technology. To make these kinds of situations easier, TRUMPF offers a range of machines designed to **help newcomers get on board** – such as the new TruLaser Series 1000.

*In brief*

# Starting out simply: TruLaser Series 1000

TRUMPF has completely revamped its TruLaser Series 1000 machines, adding options that include fully fledged automation. The TruLaser Series 1000 can also handle many of the processes connected to cutting on its own, helping to reduce the cost per part. Equipped with a robust laser and time-tested features such as collision protection, these machines offer a highly reliable sheet metal cutting process. The new series consists of two types of machine, the TruLaser 1030 fiber and the TruLaser 1040 fiber with work areas three and four meters long, respectively.

## New operating interface

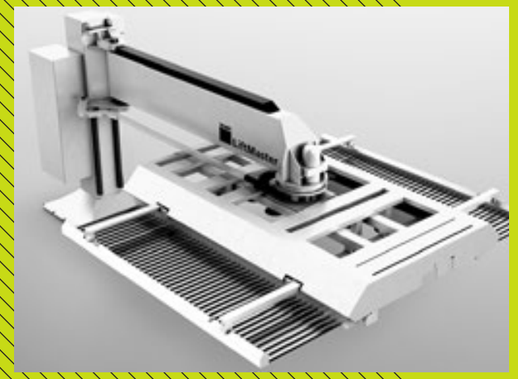
The TruLaser Series 1000 comes with a new 18.5-inch multi-touch control panel. The top level of the menu structure displays the features that the operator uses most frequently. The control unit also enables operators to resume jobs from the same point they left them after a break.

## The reliable way to tackle jobs

The machines with a four-kilowatt laser come with BrightLine fiber, a feature that makes them outstandingly reliable even when cutting thick structural steel. In the event of a collision with tilted parts, the cutting head is deflected by a special protective mechanism to prevent damage to the cutting head and machine. The TruLaser Series 1000 deposits slag and small parts in drawers below the machine's frame.


## Fully automated

Users can now opt to equip the TruLaser Series 1000 with automated LiftMaster components that load raw sheets into the machine and remove cut parts. Customers can also connect TruLaser Series 1000 machines to the compact TruStore storage system or to a Stopa large-scale storage system.



## Faster cutting and quicker set-up

These new TRUMPF machines are significantly more dynamic than their predecessors. For example, the positioning speed has been increased from 85 to 140 meters per minute. The machine cuts all materials and sheet thicknesses with the same cutting head, and it can change nozzles automatically with the optional nozzle changer. Sensors monitor the optics' protective glass and let the operator know when it needs to be replaced, eliminating the need for manual inspections. All these features help to reduce the machine's set-up time.

## About the customer

**Lincoln Precision Engineering**
Directors: Trevor Wherrell,
Aron Wherrell
Whisby Road, North Hykeham
Lincoln, LN6 3QZ, UK

Phone: +44 1522 509 904
Email: sales@lincolnprecisionengineering.co.uk

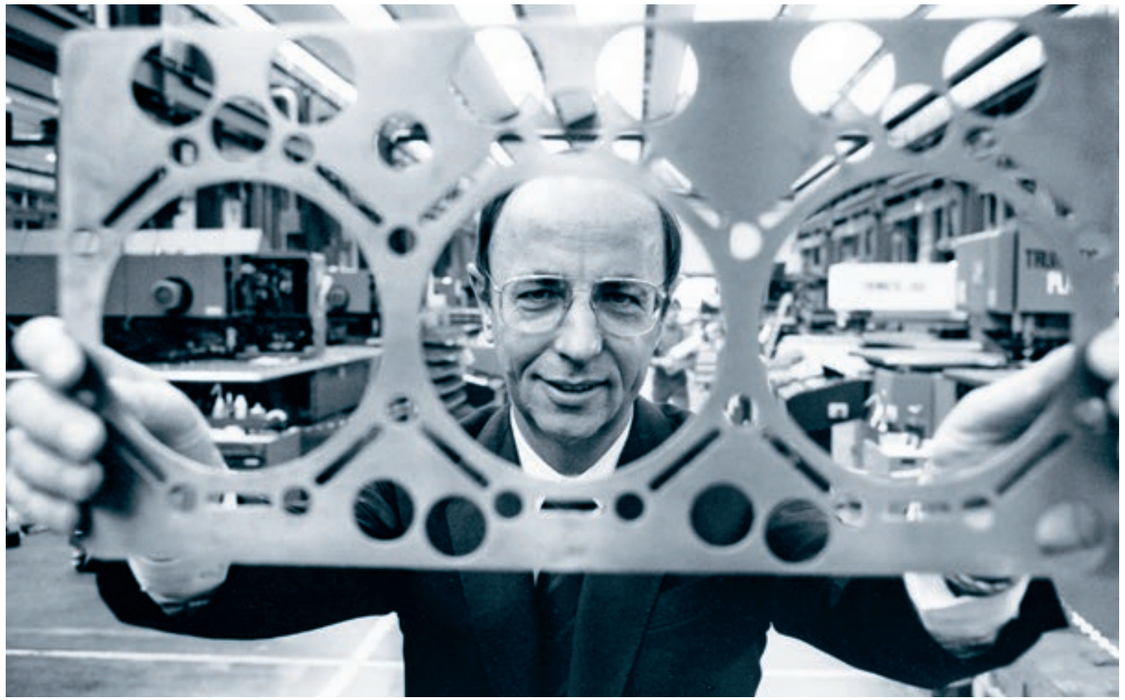
## Machinery

- TruLaser 3030
- TruLaser 5030
- 2x TruBend 3120

04

GERMANY

*Trust in Ditzingen*



**Prof. Dr. Berthold Leibinger**, former TRUMPF CEO and chairman
† October 16, 2018

IMAGES: TRUMPF

“ The desire to **do something useful,** to make an impact, to apply my knowledge, was overwhelming. ”

1958

Former TRUMPF CEO and chairman Berthold Leibinger was an inventor, a down-to-earth businessman and a philanthropist – but, above all, he was a visionary. He trusted his instincts, made pioneering decisions and transformed the once small, Swabian TRUMPF machine shop into a global player and market leader. He died on October 16, 2018, aged 87. In this issue of TRUe, we take a look back at his life.

## A young man with a purpose

What brought Berthold Leibinger to TRUMPF was a combination of fate and happenstance. In the 1920s, his parents ran an East Asian antique store in the emblematic Königsbau building in Stuttgart. Anna Trumpf was a loyal customer who became a close friend of the family, so when Berthold Leibinger was born in 1930, his parents asked her to be his godmother. After passing his school leaving examinations in 1950, Leibinger embarked on an apprenticeship at a company run by Christian Trumpf, his godmother's husband. At that time, he was interested in the arts and humanities, though he firmly believed that he should do something "useful and important" as a career. What's more, his experience of the Second World War had left him determined to help rebuild his homeland. One year after joining TRUMPF, Leibinger got the opportunity to study mechanical engineering. He never lost touch with the company where he had taken his apprenticeship, however. At the end of the 1950s, while still a student, he developed the copy nibbling machine that would go on to play a key role in the successful evolution of the TRUMPF company.

Leibinger grew up in the Swabian town of Weilimdorf and attended high school in Korntal.

Literature and poetry were two of his greatest pleasures as a young man, and Erich Kästner was one of his literary heroes.

The mountains held a special attraction for Leibinger. Over the years, his family spent many happy hours in their holiday home in Klosters.

Doris and Berthold Leibinger in the Black Forest in 1954:
The couple were married for 61 years. Recalling their first meeting, Leibinger said "it was like being struck by lightning".

"Christian Trumpf played **a very important role** in my life. He held my professional fate in his hands and never disappointed me. Quite the opposite in fact! "

2010

### TRUMPF: First love

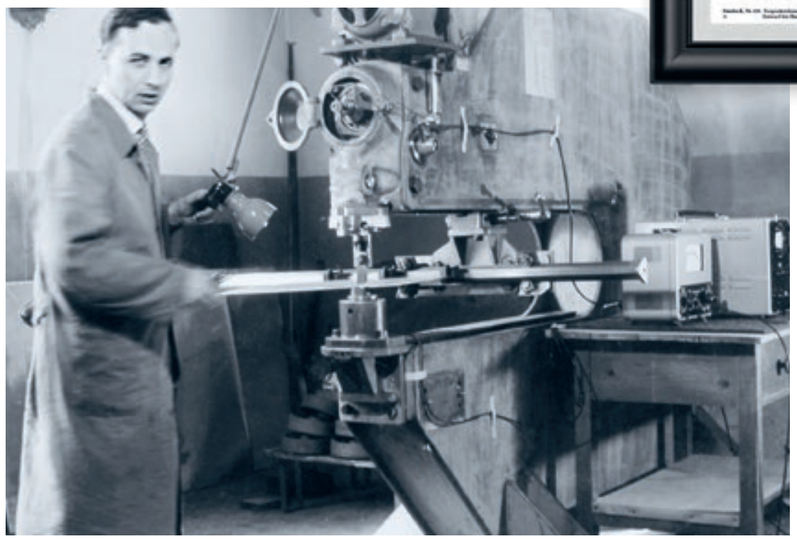
After completing his studies and a brief stint working for TRUMPF, Leibinger headed to the US with his wife Doris in 1958. He spent two years there working as a designer for the Cincinnati Milling Machine Company, then one of the world's leading machine tool manufacturers. The couple felt very much at home in Wilmington, Ohio, yet their ties to their homeland – and to TRUMPF – ultimately proved to be stronger. Leibinger himself once said that he always had the desire to return and achieve something meaningful at his "first love".

IMAGES: TRUMPF



Little did the 30-year-old engineer know just how much he would end up shaping and influencing TRUMPF. In 1961, he became the head of the design department and, just eight years later, the former apprentice was appointed as CEO, a position he would hold for the next 36 years. His daughter Nicola Leibinger-Kammüller took over from him as chairwoman of the Managing Board in 2005, and his son Peter Leibinger was appointed vice chairman.


Berthold Leibinger's apprenticeship contract

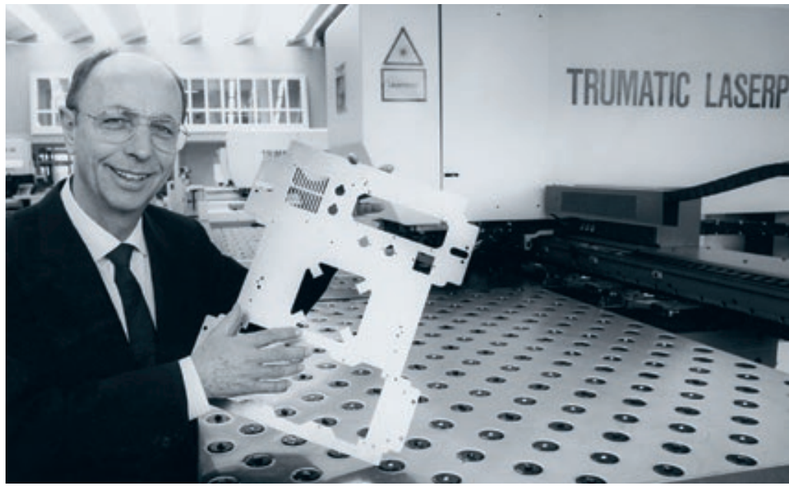


Berthold Leibinger worked his way up from an apprentice to the company's owner, starting at TRUMPF on a monthly wage of 65 Deutschmarks in 1950...

...and gradually turning the company into a global market leader over the following decades.

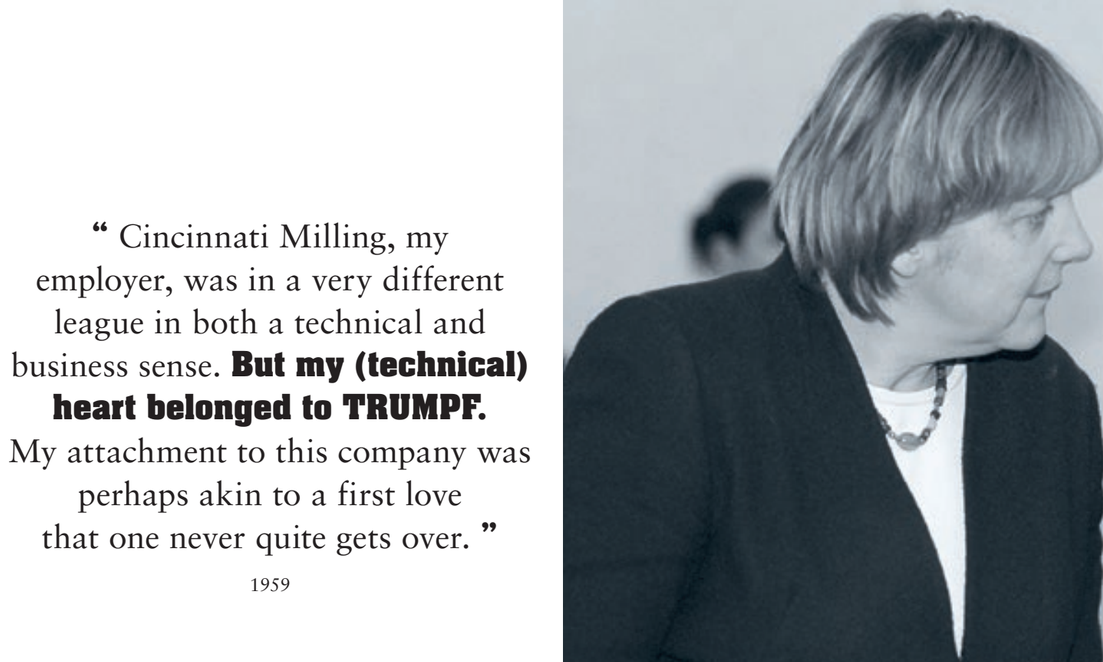
"Even back then, I thought **this company could become something truly remarkable.** "

1957



“ Cincinnati Milling, my employer, was in a very different league in both a technical and business sense. **But my (technical) heart belonged to TRUMPF.** My attachment to this company was perhaps akin to a first love that one never quite gets over. ”

1959



In March 1989, seven months before the fall of the Berlin Wall, members of the GDR Politburo paid a visit to the TRUMPF booth at the Leipzig spring trade fair. Erich Honecker asked what a laser actually was. Leibinger thought carefully, and responded: “A laser is a tool that can serve to separate or connect – it all depends on the setting.”

IMAGES: TRUMPF

Berthold Leibinger was also a respected figure in the world of politics. Here we see him in conversation with German Chancellor Angela Merkel.

“ We were never actually commissioned to develop this machine. We simply decided to build it. The TRUMATIC caused a minor sensation at the **Hanover machine tool trade fair in 1967.** ”

1967



“ The **future of the company** now lay in our hands. We never had any doubt that we would succeed. ”

1969

## Courage and trust in abundance

TRUMPF was more than just a company to Berthold Leibinger – it was his life. Even after his daughter took over the helm, he still spent every day “at work” in his office. He always wore a suit and tie, because Leibinger was very much a gentleman of the old school.

Berthold Leibinger made all sorts of important business decisions. In retrospect, the most important one of all was probably his decision that the company should develop its own laser for cutting sheet metal. This was a mammoth task, particularly since TRUMPF had hardly any experience in that area. Nevertheless, Leibinger decided to take the risk – because he firmly believed in the new technology. In 1985, after just two years of development, TRUMPF presented its first CO2 laser: the TLF 1000. That transformed the company overnight into a global market leader for industrial lasers.

In 2006, Berthold Leibinger was awarded the Knight Commander’s Cross of the Order of Merit of the Federal Republic of Germany by then German president Horst Köhler.

“ We decided to **develop our own laser.** It was a bold undertaking because we were machine makers who knew very little about laser physics. When we finally achieved our goal in late summer 1985, we had the **world’s best laser for cutting metal.** ”

1985

## Art and culture instead of hunting and yachting

Leibinger was a modest, hard-working and humble man. He charted a clear course, had high standards and tended to follow strict rules. Yet, at the same time, he forged close ties with his employees over the years and decades he spent at TRUMPF. He took care of his workers and knew many of them by name. When the company had to let 60 employees go during the economic downturn in the early 1990s, it affected Leibinger deeply – because however successful he was at business, he never lost the human touch.

He rarely had any free time, but when he did, he favored art and culture. He loved Bach and Schiller and was actively involved in many organizations, associations and his community. Asked how he found time for all this, he gave a response that has become almost legendary: “My motto has always been to avoid golf, hunting and yachting. Without those pastimes, people can get far more done!”

Berthold Leibinger’s biography offers many examples of the importance of trust. He believed in a great future for TRUMPF back when the company was still a small machine shop in Weilimdorf. He invested time and money in new technologies. He trusted in the potential of his homeland and the skills of his employees – and he fostered creative ideas. In everything he did, Berthold Leibinger demonstrated that farsightedness, trust, and the courage to change go hand in hand – and can make a truly remarkable difference.

“ Looking at my daughter Nicola running the company, I feel very fortunate; because **how many people get to choose a successor that they love?** ”

2014

IMAGES: TRUMPF



“ I have always believed that we have **a duty** to try and **improve** the world in which we live – each of us within the scope allotted to us. ”

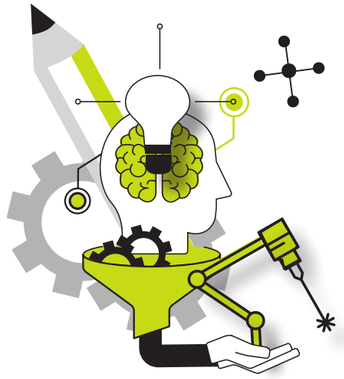
2010

**Prof. Dr. Berthold Leibinger,**
former TRUMPF CEO and chairman
† October 16, 2018

BIZ+

# SHORT CUTS

*Fascinating facts and exciting innovations.*



## Lasers for beginners

Some 40 TRUMPF apprentices and students recently developed their own 2D flatbed laser machine based on the TruLaser 1030 fiber. The “training machine” project gave the talented young team a chance to learn how the design process works. They also visited the Grüsch production site in Switzerland and the Hagenau site in France to see the process in action. “The project gave me a better idea of what my career might look like in the future,” says student Dominik Walouch.

## Labor minister pays a visit

German labor minister Hubertus Heil visited TRUMPF in Ditzingen in December 2018. He held talks with the management, the works council and staff from the training department. They primarily discussed what consquences increasingly digitalized production processes will have on Germany as an industrial location and what challenges this is creating for vocational training. The minister was keen to find out how an agile working time system could help companies respond to fluctuations in capacity utilization. TRUMPF has been using this kind of system since 2016.

## TRUMPF at LogiMAT

This year is the first time that TRUMPF has exhibited at LogiMAT in Stuttgart, the international trade fair for intralogistics. The company took the opportunity to showcase its new indoor positioning system Track&Trace. TRUMPF presented visitors with a number of software solutions that make it easy to set up the positioning system in a factory. The company also collaborates with partners to offer customers the option of incorporating the technology in their own software and hardware. Potential applications include positioning systems for automated guided vehicles that move materials around manufacturing facilities.


## Recommened reading: the TRUMPF story

In his book TRUMPF. Geschichte eines Familienunternehmens (“TRUMPF. History of a family company”), economic historian Jochen Streb traces the evolution of this high-tech company from a mechanical workshop to the world’s leading machine tool maker and laser specialist. Streb describes how the company’s steadfast determination to innovate and take courageous entrepreneurial decisions helped TRUMPF endure war and crises. The story of TRUMPF is published by Hanser Verlag and is available from all good bookstores. It will also be available in English from April 2019.

IMAGES: TRUMPF, BrandsOnSpeed

## A growing family

TRUMPF recently acquired Photonics GmbH, the laser diode division of Philips. Laser diodes are used in digital data transmission and sensors for autonomous driving – but their most common use is in smartphones. “We have enjoyed outstanding growth since the company was founded in 2000. Over half a billion cell phones worldwide are equipped with laser diode technology from Philips Photonics,” says Joseph Pankert, general manager of Philips Photonics. The company employs 280 people. “The purpose of this acquisition is to tap into new product lines and expand a strategically important segment of our existing portfolio,” says TRUMPF CEO Nicola Leibinger-Kammüller. Joseph Pankert agrees that the acquisition offers some major potential: “We are delighted to be joining the TRUMPF family. It ensures that our division will continue to post solid growth as part of a highly innovative company.” In addition to its headquarters in Ulm, Photonics GmbH also has sites in Aachen and in the Dutch city of Eindhoven, as well as three sales offices in China.

## TRUe sweeps the board

TRUe continues to pick up prizes. At this year’s American Galaxy Awards, the customer magazine took gold in the best design category. The jury also chose TRUe as a Grand Award winner, praising its modern design and diverse range of articles. The TRUMPF customer magazine adopted a new name and a new look some two-and-a-half years ago. In total, the magazine for sheet metal experts has received seven different corporate publishing and design awards from both national and international juries.


## California dreaming

TRUMPF is expanding its presence in the US. In 2019, the TRUMPF Technology Center will be opening its doors in Costa Mesa in Orange County, south of Los Angeles. The on-site team will offer machine and software training, demonstrate new products and organize seminars at the facility, which covers almost 1,900 square meters. The site will also be connected up to the TRUMPF Smart Factory in Chicago and the Farmington facility. That will allow visitors to the Center in California to take part in product demonstrations at both locations without having to travel there.

# SEEK AND YOU WILL FIND

**Kids all over the world love playing hide and seek. But there's certainly nothing fun about the often tedious and annoying process of looking for parts in sheet metal fabrication. Fortunately, TRUMPF has put an end to all that with Track&Trace. A clever combination of markers and satellites allows users to monitor and track jobs throughout the entire manufacturing process.**

The **satellites** receive signals from the marker and forward them to an **industrial computer.** The computer screen shows a **clear overview** of the part and its current position.

The **markers** are equipped with an **e-ink display** that can be set to display specific information such as a job number. Users can place or mount the markers on parts, stacks of parts or load carriers. These markers then transmit **signals** to satellites on the factory ceiling.


Users can activate individual markers from an industrial computer. The **LEDs** on the chosen marker will then flash, making it easier to find.

# Digital troubleshooting: the TRUMPF Service app

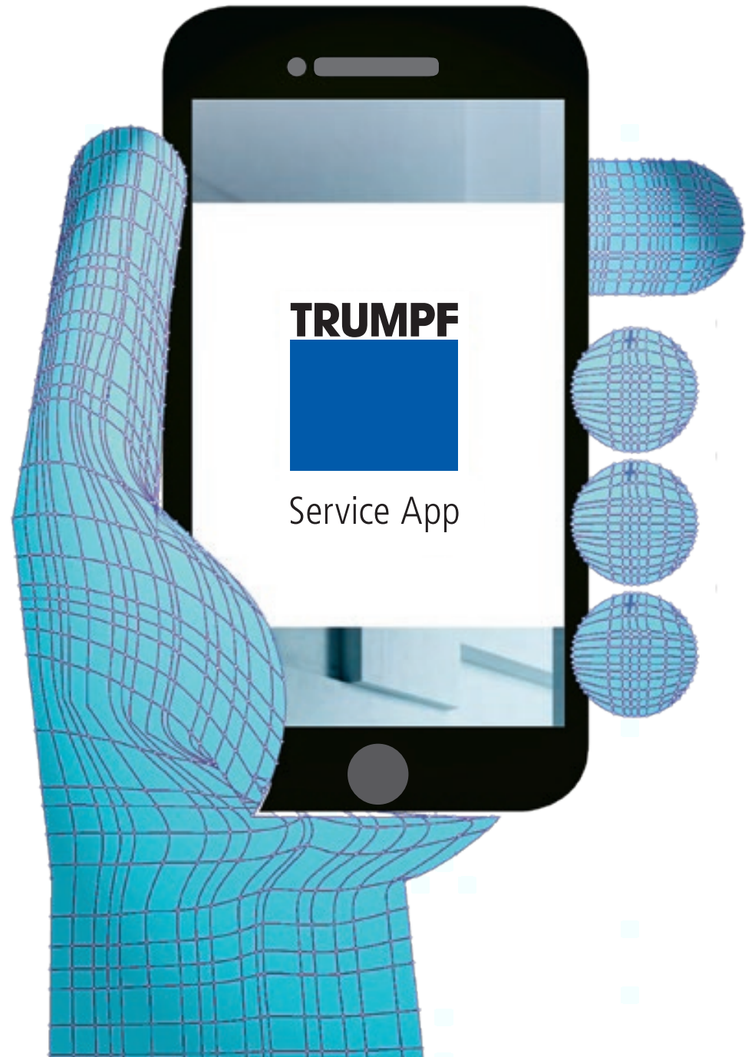
**If a machine breaks down or develops a technical fault, there's no time to waste. In the past, Rudolf Jambrich would have grabbed the phone and called the customer technical support line. But now he simply pulls out his cell phone, opens the TRUMPF Service app and reports the incident there – regardless of how late it is and whether he is on site or not. This new communication channel has definitely paid dividends for the head of production at Wertheim Vertriebs GmbH.**

Malfunctions often occur at the most inconvenient times, such as halfway through a night shift or at the weekend. Just over a year ago, the company Wertheim Vertriebs GmbH began using the TRUMPF Service app to report these kinds of incidents at its plant in the Austrian town of Guntramsdorf. "The app definitely saves us time. It sends information about the problem straight to the TRUMPF technician. We've already used the app to sort out more than 50 malfunctions and other incidents since early 2018," says production manager Rudolf Jambrich. "The fact that everyone always has the latest status updates eliminates the need for all those emails and phone calls we used to have."

To report a malfunction, all the operator has to do is select the machine from the list and state the reason for submitting the incident report. They can also upload photos and provide the name of the person responsible for the machine at Wertheim Vertriebs GmbH.

Jambrich and his colleagues can also use the Service app to contact the technical support team at any time about issues such as replacement parts and maintenance. "And the use of case numbers means you can be confident you're always in touch with the right person at TRUMPF," says Rudolf Jambrich. "Now we're looking to introduce the app at other sites, too."

The TRUMPF Service app is available for free from the Apple App Store and Google Play Store. To use it, all you need to do is sign up for an account on the MyTRUMPF customer portal.



# KEEPING A LASER EYE ON THINGS

**TRUMPF's Active Speed Control sensor system is another milestone on the road toward autonomous laser cutting. Hendrik Gerdesmeyer from Schickling GmbH has already put it to the test.**

IMAGES: TRUMPF, Sebastian Heun



The TruLaser 5040 fiber with a ten-kilowatt solid-state laser is a highly productive workhorse at Schickling, a company that specializes in cutting thick sheet metal. Shift manager Hendrik Gerdesmeyer was impressed by its power and machining quality right from the start. It doesn't get any better than this, he thought – at least until he tried out the same machine with the Active Speed Control sensor system: "The fact that this powerful machine can now autonomously monitor the quality of the cut makes our work easier than ever before."

Hendrik Gerdesmeyer has plenty of experience in this field. Based in Visbek in the German state of Lower Saxony, Schickling's customers include automotive engineering and HVAC companies as well as specialists from the agricultural and furniture industries. This broad mix requires machines that can handle a wide range of materials. That, in turn, means Gerdesmeyer and his team need plenty of experience and expertise to keep production running smoothly, because the feed rate and cutting speed always need to be perfectly tailored to the material being processed. "Sometimes very thick sheets can bring the cutting process to a halt," says Gerdesmeyer. "The same problem can occur if the thickness of the material varies within a single sheet or if the top of the sheet is contaminated. We have to constantly be alert for those kinds of situations and respond accordingly."

## The greatest benefit? A more reliable process

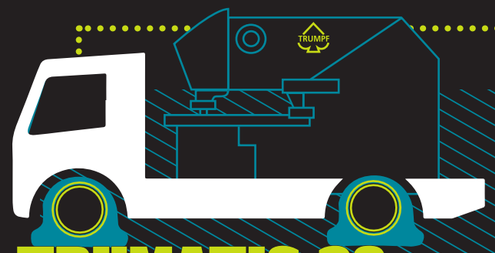
Active Speed Control enables the machine to continuously and autonomously monitor the quality of the cut. The intelligent, camera-based sensor system looks straight through the nozzle right at the cutting zone and monitors the process radiation in real time. By analyzing this radiation, the system can judge the quality and stability of the cutting process. The images taken by the camera allow Active Speed Control to identify the fastest possible feed rate and make any adjustments autonomously – a process it repeats many hundreds of times a second. Hendrik Gerdesmeyer is delighted with the results: "All we have to do now is set up the machine with the right cutting parameters – we don't have to set a suitable feed rate or carry out a test cut any more. The sensor system ensures that no burrs or slag are formed, even at the highest possible cutting speed. For us that means less scrap, less rework and, obviously, lower costs."

At the moment, Schickling primarily uses the sensor system to monitor the high speed machining of steel and stainless steel sheets between four and eight millimeters thick. "In the past, we actually had someone standing right next to the machine and supervising the cutting process, especially if we were processing new material," says Gerdesmeyer. "Now they can spend their time on other tasks and let Active Speed Control keep the process outstandingly stable – that's the greatest benefit of all as far as I'm concerned."

*AHA!*

# TRUMPF LEGENDS

TRUMPF won't be celebrating its 100th anniversary until 2023 – but plenty has happened already in the 95 years since the company was founded. In fact some key figures and machines from TRUMPF's history have already acquired a legendary status. Here we take a look at some of our employees and products, highlighting key innovations that have made TRUMPF a global market leader in machine tool manufacturing.




## TRUMATIC 20

The year 1967 saw a major breakthrough with TRUMPF's launch of the TRUMATIC 20 at Hannover Messe – the first punching and nibbling machine with numerical control. Thanks to the use of punched tape, the machine was already able to perform many processes automatically. The first machine's maiden voyage ran into some problems, however, because it was too tall to fit through the factory gate. The workers had to almost completely deflate the van's tires in order to get the machine off the company's premises in Weilimdorf.

## TRUMATIC L 3000

Almost like flying: up until this point, sheet metal fabrication on stationary machines had generally involved moving the sheet while the processing head stayed in the same position. But the laser was more flexible. It allowed engineers to rethink how the machines were designed. In 1987, TRUMPF took advantage of this by launching the TRUMATIC L 3000, a flatbed laser cutting machine with flying optics.


## TRUMATIC 180

From the "King of Nibblers" to laser cutting: in 1979, TRUMPF launched the first combination punch laser machine in the form of the TRUMATIC 180 LASERPRESS. The beam sources were 500 and 700-watt $CO_2$ lasers from the USA. The goal was to replace the conventional method of contour nibbling with laser cutting. People in the trade praised the machine, noting in particular how much quieter it was.

## TLF 1000

1985 was the year in which TRUMPF became a laser manufacturer in its own right with the production of its first $CO_2$ laser after just two years of development. With a beam power of one kilowatt, the TLF 1000 transformed TRUMPF virtually overnight from a machine maker into the global market leader for industrial lasers.




## Christian Trumpf

The company bears his surname for good reason. In 1923, Christian Trumpf acquired Julius Geiger GmbH and steered the machine shop through some tough times. It was partly thanks to his smart business decisions that the company survived the Great Depression in the 1930s and the Second World War. He decided early on to rely on permanent sales staff and to make regular visits to national and international trade fairs.

## Paul Seiler

Experts in industrial laser technology rightly point to Paul Seiler as a pioneer in this field. In 1971, the precision engineer developed a groundbreaking laser components system and was appointed CEO of Haas Laser GmbH. When TRUMPF acquired the company he retained an executive post and helped develop the company's current laser business. In 2017, Seiler received his profession's highest accolade with an award for his life's work from the Laser Institute of America.

## Berthold Leibinger

From apprentice to managing director and sole owner. It may sound like the American dream, but it describes Berthold Leibinger's career at TRUMPF perfectly. He ran the company for almost 40 years, and his visionary ideas turned it into a global market leader. A gifted engineer and inventor, he was responsible for a variety of developments and patents.


## Ludwig Litzenberger

TRUMPF's ascent to the ranks of global player is, in part, thanks to the entrepreneurial instincts of Ludwig Litzenberger. As the company's head of sales, he laid the foundations for the internationalization of the Ditzingen-based company. He ran the US subsidiary in Connecticut and worked hard to establish a south-east Asian site in Singapore in 1991.

**More legends**

Recently published by Hanser Verlag, the book TRUMPF. Geschichte eines Familienunternehmens ("TRUMPF. History of a family company") by Jochen Streb contains plenty more in the way of fascinating facts, figures and background information.

IMAGES: Kai R. Joachim

05

THE FUTURE

# GENUINE ARTIFICIAL INTELLIGENCE

**From Terminator** to **I, Robot and Matrix,** artificial intelligence has been inspiring filmmakers for decades. The plots are generally firmly in the realm of **science fiction** – but TRUMPF is already running projects that are turning AI into reality.

**Mirrored in the machine**: Christoph Blömker and his team meet up on a regular basis to discuss the project.

When people hear the phrase artificial intelligence, they are often unsure what to make of it. Robots are what spring to mind in most cases – but the reality is much more complex. Artificial intelligence is a branch of computer science concerned with the automation of intelligent behavior and machine learning, an area in which self-learning algorithms play an important role.

TRUMPF has long regarded itself as a process provider rather than just a machine maker. Artificial intelligence is starting to play a key role in an increasing number of processes, according to Chief Digital Officer Mathias Kammüller: "AI is also becoming more important in production, enabling companies to boost the efficiency of their manufacturing processes. This is where German industry needs to play a pioneering role. No other country has such a tremendous stock of machine building expertise – and that knowledge offers us a major competitive edge."

## Smart machines

Christoph Blömker is working on an AI solution. Together with his colleagues, he hopes to make the TruLaser Center 7030 even better. "Originally we didn't even intend to incorporate artificial intelligence in the TruLaser Center 7030. But then we realized we had reached the limits of what we could teach the machine with simple algorithms and manual data analysis, so a couple of years ago we decided that the fully automated machine needed to start teaching itself things, too," says Blömker.

The TruLaser Center 7030 is the first machine to bring together every aspect of the laser cutting process, from raw metal sheets right through to neatly stacked, finished parts. It features an automation unit with built-in sensors. These check whether the pins have successfully lifted cut-out parts out of the scrap skeleton so that the SortMaster Speed suction pads can grab hold of the parts and remove them. If a part gets stuck, the machine autonomously initiates a new attempt. The developers soon came up with the idea of making use of this information by collecting it from all the machines that are currently in operation worldwide. TRUMPF now runs an automated, centralized system that evaluates data on these various attempts – the ones that initially failed, and the one that eventually succeeds. The results of this data comparison can then be transferred from one machine to all the other machines of the same type. "Due to the complexity involved, the analysis of this data is the perfect candidate for applying self-learning algorithms," says Blömker. At the moment, the emphasis is on collecting the data. This will subsequently serve as a basis for analysis and machine learning.

IMAGES: Kai R. Joachim



**Creative corner**: Kathrin Pfaff and her colleagues have created an app that shows how AI can make life easier.

## Learning from failed attempts

"We want customers to benefit from this directly and make even better use of their machine," says Blömker. The TruLaser Center 7030 learns from experience, just like humans. But in the case of fully automated laser machines, this experience takes the form of data. However, TRUMPF needs machine users' help to build up a repository of data: "Without our users it would be impossible to get the data we need. That's why it's important for our customers to understand how artificial intelligence can help them," says Blömker. What interests TRUMPF in this context is not customer-specific data, but metadata.

Failed attempts are just as important as successful attempts when it comes to artificial intelligence, because these "balanced" results provide the basis for machine learning algorithms.

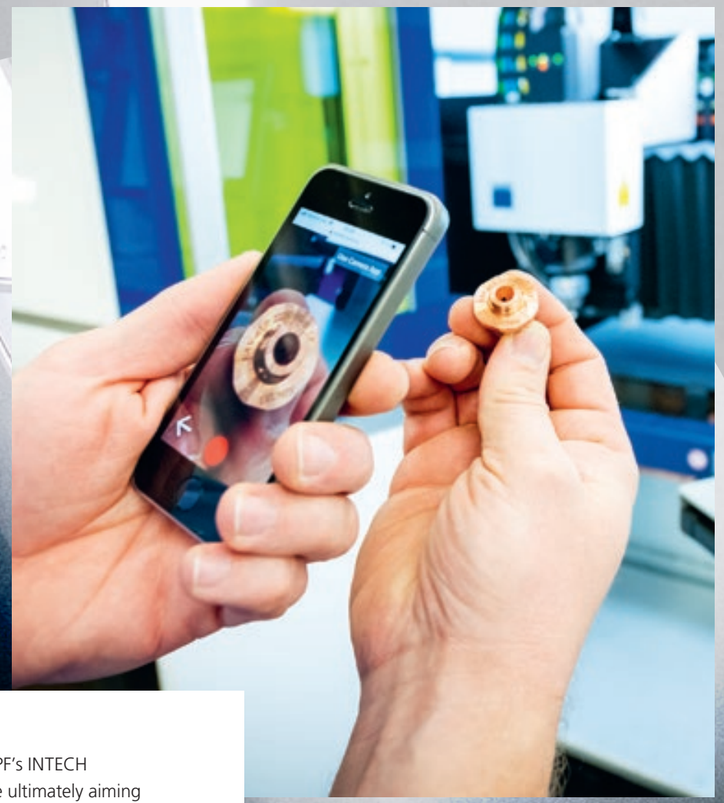
## Smart photos

Fully automated laser machines are just one example of how TRUMPF is pushing ahead with artificial intelligence. The company is also putting AI to use in after-sales service. Kathrin Pfaff – head of new and digital business services – has developed a solution with her team that transforms how replacement parts are handled. The application allows customers to identify products using a photo or camera scan. "Most parts don't come with an RFID code or order number; they are simply too small, so the only labelling is on the packaging. People rarely keep the packaging, however, and that makes repeat orders more difficult. A photo is much simpler than plowing through a catalog to find the right product number," says Pfaff. The application forms part of the Easy Order app.

Artificial intelligence doesn't need to be complicated – especially not for users. The technology uses the photos to identify which part needs replacing. Users can then easily submit an order for the relevant parts through the Easy Order app.

The part recognition process works thanks to an artificial, neural network which TRUMPF populates with photos of the various items that can be ordered. "We're also planning to let customers submit images to help develop and enhance the database. The more feedback we get, the better it will work," says Pfaff. "Our app saves time and is particularly useful for new employees who are less familiar with TRUMPF machines."

The first parts to be incorporated in the new feature are laser consumables. The most frequently used parts were successfully



added to the neural network in time for TRUMPF's INTECH in-house trade show. "Obviously, though, we're ultimately aiming to incorporate all 30,000 replacement parts," says Kathrin Pfaff. "The app is definitely smart enough to handle it."

## Strength through collaboration

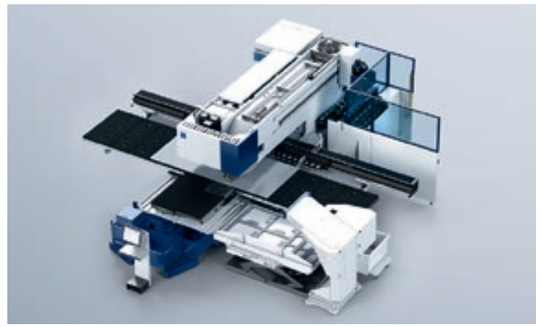
TRUMPF invests in training and developing its employees and strives to expand its technology network, says Mathias Kammüller: "We're working in relevant associations to address the topic of artificial intelligence. We also cooperate with universities, because we believe that we can achieve more together." TRUMPF brings its expertise as a machine maker to the table – and that's something that also benefits customers. "Our in-depth understanding of key processes and decades of mechanical engineering experience allow us to interpret production data and support our users even better," says Kammüller. AI can only succeed if the underlying conditions are right – not just at TRUMPF, but all around the world. "We need an optimized infrastructure in Europe. Transferring large quantities of data requires politicians to address the issue of broadband expansion in rural areas, because we have plenty of customers there, too," Kammüller adds.

IMAGES: Kai R. Joachim, TRUMPF

TEC+

# SHORT CUTS

*Innovations, technologies and future trends.*



## TruMatic 7000 and the dot matrix code

The new TruMatic 7000 punch laser machine offers a variety of smart functions that make production processes even more reliable. These functions enable the machine to solve minor problems on its own. One example is the ability to release parts that get caught in the scrap skeleton when the machine tries to eject them. Another is TRUMPF's addition of a new sensor to the vacuum slug removal system. This measures the level of contamination in the system and alerts the user if it climbs too high. The developers have also revamped the SheetMaster automatic loading and unloading system, making it significantly quieter. The TruMatic 7000 comes with a four-kilowatt TruFlow $CO_2$ laser as standard. Users can now also apply Dot Matrix codes to sheets using the laser beam itself. Previously this was only possible with the punching head. The codes act as a paperless means of marking and identifying parts, substituting the documentation that would otherwise accompany each part. The code can be applied not only to the top of the sheet, but also to the bottom thanks to the active die. Users can display up to 100 characters of plain text in a dot matrix code.

## All in green

For the first time, TRUMPF has succeeded in printing pure copper, gold and other precious metals using a green laser. To do this, the engineers hooked up the new TruDisk 1020 disk laser to a TruPrint 1000 3D printer. Unlike conventional infrared lasers, the TruDisk 1020 operates using a shorter wavelength. Situated in the green spectrum, this enables users to weld highly reflective metals. That opens up new possibilities, particularly in the electronics and automotive industries. There are also benefits for jewelry manufacturers: producing a piece of jewelry with 3D printing uses much less material than milling or casting, making it far more economical.

## Support for laser cutting

The new Cutting Guide software utility helps machine operators prevent or eliminate typical cutting problems such as burrs and breaks in the cut. The software walks the operator through the basic settings step-by-step, highlighting recommendations on the screen as appropriate. This avoids downtime and makes the overall process more reliable. Cutting Guide is available for the TruLaser 1030 fiber, the TruLaser 3030 fiber and the TruLaser 5030 fiber.

# SMART PARTS

**Intelligent consumables can accurately predict how a machine's condition will develop over time. Karsten Tonn, head of TruServices, explains how these "smart parts" work – and how they benefit users.**

***What will customer technical support look like in the future, Mr. Tonn?***

Customer support in the future will essentially be self-organizing. One of the key concepts here is condition monitoring, which denotes a machine's ability to autonomously report its condition. Obviously customers have to agree to such monitoring in advance but, when they do, it allows us to check up on a machine's status around the clock so we can detect and prevent malfunctions sooner rather than later.

***That's what people call predictive service, right? What does that encompass?***

Well, what normally happens right now when a machine malfunctions is that the customer contacts technical support and our in-house service staff analyze the incident, for example using remote support tools. If necessary, they submit an order for a replacement part and schedule a technician call-out. But ultimately our goal is to prevent the malfunction in the first place! By checking the condition of connected machines around the clock, we can evaluate any anomalies or deviations from the norm and notify the customer before the machine stops working.

***What role do smart parts play in this process?***

Smart parts are replacement parts that report their status via a chip or sensor. These parts send out an alert as soon as their condition changes and becomes critical. They tell the customer when they have to be replaced, when they are about to fail, or, in the worst case, when they might cause the machine to stop working. So, in a sense, smart parts can predict a machine's future.

***Sounds a bit like science fiction! How much of this is just a distant dream?***

Absolutely not. We already have real-life examples of smart parts, such as the lenses that focus laser beams. Some readers may already be familiar with RFID lenses, and they already check all the boxes I just described.

***How exactly do RFID lenses work?***

Each lens is equipped with an RFID chip that improves the whole condition monitoring process. It prevents thermal damage to the lens and allows users to check the degree of contamination at the push of a button. That means they only need to clean the lens when it's really necessary, which saves time and money.

***How do customers benefit from condition monitoring and smart parts? And how do they affect production?***

By combining condition monitoring and our smart parts, we can replace unscheduled machine downtime with predictable and manageable actions. The resulting increase in machine availability and shop floor transparency is the biggest benefit for our customers. The production process itself remains unchanged because the customer still has the same machines – they are simply connected to TRUMPF.

***Will smart parts, condition monitoring and predictive service make technicians redundant in the future?***

Absolutely not! They will still be called out to customer sites, but in a planned and scheduled way. Ideally, many call-outs will no longer be necessary because malfunctions will be prevented before they happen and in-house support staff will solve anomalies at an early stage using remote support. But whenever a technician is needed, they will already know the machine's condition and be better prepared to solve the problem quickly.

IMAGE: TRUMPF

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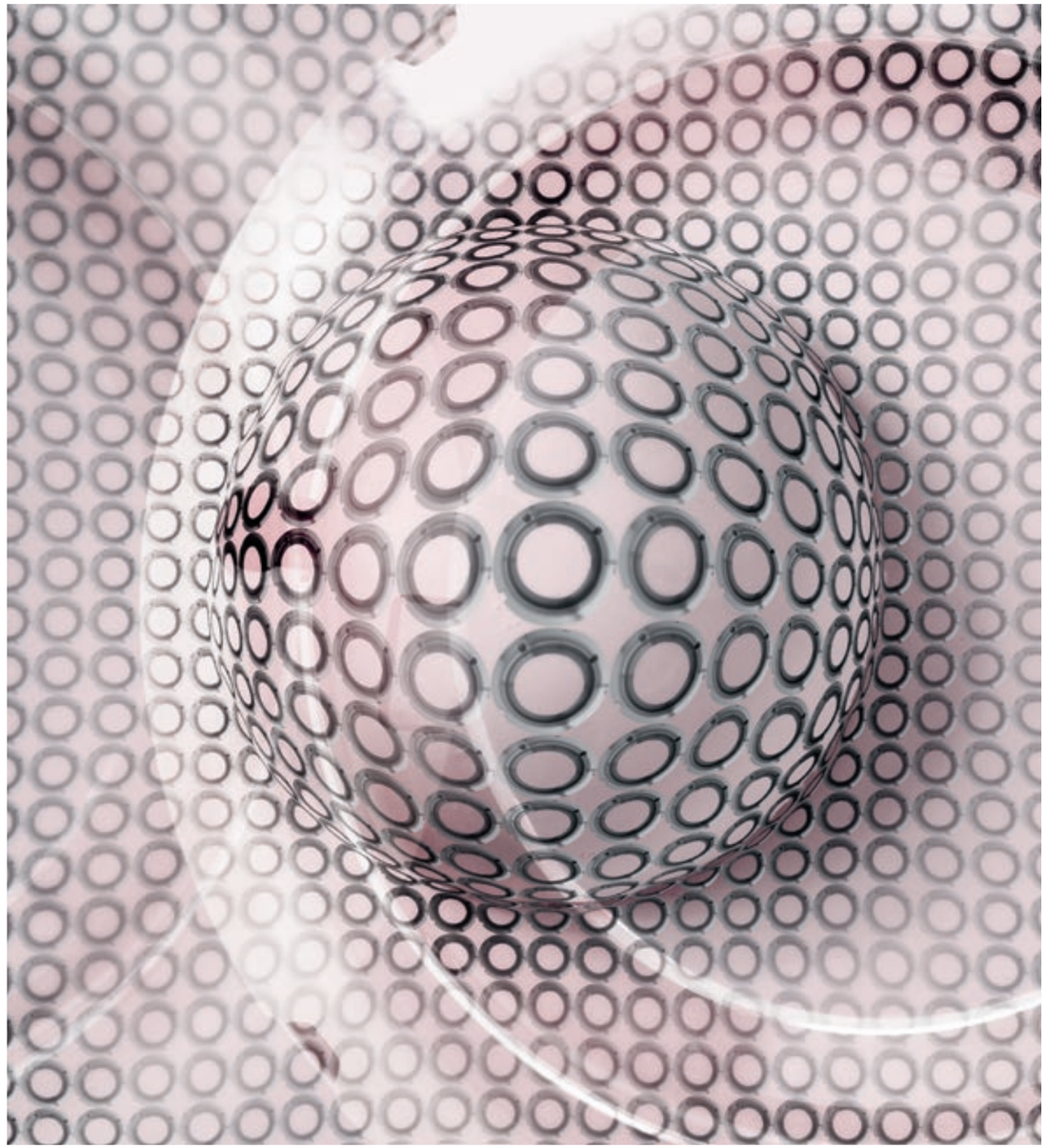
# pARTgallery



**Technology transformed into art**. Presenting parts in a new light is something we do in every issue of TRUe. This time we take a fresh look at a **die holder**. Photographers **Steff Rosenberger-Ochs and Frank Bayh** took this punching tool out of its familiar environment and placed it in an entirely different setting.

# TRUST

## Upfront optimism

"It'll be okay," my grandfather used to say. He had survived the Great Depression, two world wars, a currency reform, the last German Emperor – and even the humiliating defeat of the German soccer team in the 1982 World Cup. So when a little whipper-snapper like me came up to him with a bloody knee or worries about a math test, it was perfectly logical that he would tell me things would be okay.

That doesn't mean he was right, of course. Things don't always turn out okay. In fact there are lots of examples of things going wrong, sometimes terribly wrong – and I don't just mean the 20th-century catastrophes that my grandfather witnessed. Just take the most recent World Cup, which saw another embarrassing defeat for the German team, this time against South Korea! And how about math? I never got anywhere with that. Even from a meta-level perspective, there are plenty of good reasons to believe that the end of the world might be upon us in just one more rotation of the Earth.

The only certainty now seems to be that almost nothing is certain any more – and that's obviously a frightening prospect. The only question is what conclusions we choose to draw from that. Some people try to protect themselves from new and unfamiliar things by building ever higher walls. Others see the winds of change blowing stronger and stronger and choose to build windmills. I think it's clear who gets the most out of life in the long run!

Trust is a kind of upfront optimism that gives us a smoother ride through life. It's the lubricant that keeps the hinges of our existence moving. Without it, we seize up. Anyone who believes that everything needs to be weatherproof, double-checked and properly adjusted before they go anywhere will probably end up deciding it's safer not to even leave the house – only to miss all the exciting discoveries waiting for them outside.

For example, there was once a certain Mr. Columbus who zealously believed that what was waiting for him beyond the horizon was not the edge of the world, but India. It turned out he was wrong about that last part, but hey, give the guy a break – he certainly sailed home with some pretty amazing treasures and discoveries!

What this all comes down to is not naivety and recklessness, but rather a certain degree of optimism and self-confidence. After all, at the end of the day we mostly get things more or less right. In November 2008, right in the thick of the most recent global financial crisis, the German business magazine brand eins decided to gently remind its readers that things generally work out okay. The famous front page of that particular issue boldly cried "Don't panic! This too will pass."

And even though many people didn't want to believe it at the time, the crisis not only passed but also heralded the start of the longest economic upswing since the Second World War. Of course, if I had put two and two together and bought stocks in the depths of the recession, then I wouldn't be writing columns any more. But, as you know, math has never been my strong point.

Ultimately, trust means not wallowing in our bad experiences, but choosing to believe things will get better, whatever may have happened in the past. It means trusting in our creativity and in people's unique capacity to find solutions even in seemingly hopeless situations.

Just like Woody Allen said: "It is clear the future holds great opportunities. It also holds pitfalls. The trick will be to avoid the pitfalls, seize the opportunities, and get back home by six o'clock."

In other words: it'll be okay.

*Oskar Simon*



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