01 Ripoll
Say goodbye to waste:
a Spanish company uses smartphones to control production

02 Alexandria
Crisis as opportunity:
an Egyptian sheet metal fabricator prepares for the post-coronavirus rebound

03 Heusden-Zolder
Relaxing on the terrace with Machine 4.0:
a specialist for outdoor living products makes a virtue out of laziness

04 Ditzingen
Lasers, robots, billions of bytes:
TRUMPF shows off its problem-solving skills at a new smart factory
Bees are masters of efficiency. To make one gram of honey, they have to visit between 8,000 and 10,000 flowers. This is only possible thanks to the hierarchy of the hive. The hexagonal shape of honeycomb also displays a dazzling degree of perfection: a honeycomb cell provides the greatest possible storage space with the minimum amount of wax. So what can bees teach people in business? Being efficient means always striving to achieve the best you can as part of a team.
Efficiency manifests itself in many different ways. It is not always instantly recognizable. Take the Japanese tea ceremony, for example. Preparation and presentation of the tea takes hours and seems far too elaborate. In reality, however, every single movement in the ceremony is carefully choreographed. The actual preparation of the tea is of secondary importance. The primary purpose of the ritual is to maintain tradition and practice Zen philosophy. This can only be achieved by sticking closely to the rules, which also teach us to be mindful. In business, we shouldn’t be too quick to judge what’s efficient and what’s not.
When we think about efficiency, we often picture an *orderly system* such as a well-oiled warehouse. Yet chaotic *storage* systems operate on exactly the opposite principle. Instead of having permanent storage locations, parts are stored randomly wherever there is space. This might seem like *chaos* at first glance – but it soon reveals itself to be a *flexible system* in which digital traceability makes it quick and easy to find the *item you want*. There is no *recipe for success* when it comes to efficiency. Entrepreneurs must find their *own path* to achieve their goals.
It’s common knowledge that sheet metal processing gets more competitive by the day – and now the coronavirus crisis has made the situation even tougher. But don’t despair. We’re confident you can come up with a strategy to keep your business model on track for the future. There are certainly plenty of options. For example, you could expand your job description from a sheet metal supplier to a component supplier, focus on specific sectors, find a gap in the market for processing specialist materials, or offer quicker delivery times than anyone else. The list goes on and on, but what it comes down to is finding a niche in the market – an opportunity that will allow you to offer pioneering levels of customer service.

Recent developments have reinforced TRUMPF’s decision to position itself as a solution provider. That means we don’t just look at your production processes, but at your entire process chain. We look at where rejects and waste occur and identify where materials are sitting around too long and unnecessarily tying up valuable assets. And, just as importantly, we ask you what your goals are for the future. Once we have all that information, we can offer you a solution tailored to your needs.

Sometimes your situation may require solutions we don’t offer in-house. That’s when we get our partners involved, many of whose products are already integrated in our portfolio. For example, industries such as aerospace often require test certificates to confirm high-precision parts have the required dimensional accuracy. In such cases, we can offer a compact inspection machine from InspecVision that makes sure high-precision parts have the required dimensional accuracy. Some of our other partners – such as Jungheinrich and ARKU – are also striving to improve efficiency in the sheet-metal process chain, in some cases by more than 30 percent.

For years, we’ve been talking to customers about “improving output.” But our machines can only be part of the solution. Nowadays, far greater improvements can be achieved through smart processes upstream and downstream from machines. The focus here is on software, artificial intelligence and solutions to support workers. Examples include our Sorting Guide assistance system, which was recently honored as one of the “AI Champions of Baden-Württemberg” (page 34 and pictured on left).

Our smart factory encompasses everything from requesting a quote to procuring material and producing and shipping parts. When customers take a tour with our experienced experts, they get to see what efficient sheet metal processing looks like based on the example of our own production operations. As the Egyptian company Al-Ahmadeya makes clear on page 20 of this issue, this crisis also offers opportunities that can give your sheet-metal processing business the impetus it needs to face the future.

YOURS, H.-JÜRGEN PROKOP
Chief Executive Officer for Machine Tools
... in Zolder

First-class software for a first-class team: Belgium’s P&G Metaalwerken relies on TruTop Fab software and employees who believe in making more out of less.

Page 12

... in Ripoll

The smart factory consultants may have left, but the KPIs stayed. Find out why Spanish job shop Ripleg SAU decided to go fully mobile instead of just improving delivery performance.

Page 12

... in Alexandria

More investment, not less! Egyptian sheet metal fabricator Al-Ahmadeya decided to push ahead with automation during the coronavirus crisis – and TRUMPF machines provided the perfect solution.

Page 20

... in Ditzingen

Hands-on problem-solving: TRUMPF’s smart factory not only makes sheet metal parts for the company’s own machines – it also shares the secrets of greater efficiency with customers.

Page 30
Visitors to the company Ripleg in the Spanish town of Ripoll can expect to find an impressive array of cutting-edge machinery. Yet a few years ago, this family business decided to put a temporary halt to its acquisitions. Before adding any more machines, they were determined to have a good clear out to eliminate inefficiencies.
It may sound like wishful thinking, but controlling a production site with a cell phone has long been a reality. A number of companies have taken this lesson on board during the coronavirus pandemic – including Spanish job shop Ripleg SAU. “We only had around 15 of our 75 employees working on the shop floor during the height of the pandemic. This crisis has shown us that we can do a great job of controlling and monitoring our production site working from home. We used our smartphones for all the various processes, from accepting and forwarding orders to creating production jobs and programming the machines,” says Managing Director Jordi Batlle.

Streamlining through software

The idea of automated, digital manufacturing has long been firmly established at Ripleg, a family-run company based in the Spanish town of Ripoll. Company-founder Eudald Batlle Santanach and his sons transformed the business step-by-step. They began their automation journey with Eudald Batlle’s purchase of a TruMatic 5000 with SheetMaster in 2003. This punching machine was followed by an automated laser cutting machine one year later. In 2006, Batlle acquired a second TruMatic 5000 and connected both the punching machines to two STOPA storage towers with a total of 60 storage compartments. Jordi Batlle recalls what a difference it made: “Covering the initial investment costs wasn’t easy, but the automated supply of materials from the STOPA towers greatly accelerated our production operations.” More additions were to come with the purchase of two automated bending machines in 2008 and 2011 and the high-end TruMatic 7000 punching and laser cutting machine in 2016. “After that, I suggested to my father that he should perhaps stop visiting Ditzingen for a while. I told him we had enough machines!” says Jordi Batlle with a smile.

STOPA system gets things organized

Even the most efficient machines and the fastest automation components are of little use if a company fails to give its processes enough structure. Ripleg knew that it had to optimize and digitize its production processes step-by-step as well as buying modern machinery. “When we got the TruMatic 7000, we completely reconfigured our shop floor to streamline the production processes,” says Jordi Batlle. “Storage capacity increased by another 30 compartments to reach a total of 90, and the TruMatic 7000 was also hooked up to the STOPA system. “We started working with the TruTopFab production control system in 2008,” says Jordi Batlle. “By carefully programming the software, we managed to cut the number of materials we need to have in stock from 180 to today’s figure of 70. We’ve also seen big reductions in material wastage. By fabricating multiple jobs at the same time, we can fit more parts on the same sheet.”

Producing by numbers

Jordi Batlle was convinced there was even more potential to improve transparency and throughput times. So, in the summer of 2017, he decided to harness TRUMPF’s expertise by booking a smart factory consulting session. “It’s always good to get an outsider to take an objective look at how your production facility is running. We thought the consultation would be a good way to identify further optimization potential,” he says.
After conducting a detailed analysis of the company’s processes, the TRUMPF smart factory consultants proposed a range of lean management measures and suggested switching to just-in-time manufacturing. “In the past, we often had parts sitting around on pallets in the production hall for several days waiting for the next step in their processing journey,” says Batlle. “Now things are different. For example, we only punch parts if we know we can send them straight to the bending machine immediately afterwards. That reduces the time we end up storing, transporting and searching for things.”

A further boost in efficiency came from collecting and analyzing machine KPIs with the help of the TruTops Monitor condition monitoring software. The software records machine data such as downtimes, error messages, error causes, breaks and maintenance times and produces a transparent overview of how much each machine has been used. It also makes it easier to determine why delays in production occur and rectify the causes. Jordi Batlle is delighted with the results: “This new style of manufacturing and the ability to analyze our KPIs has reduced our throughput times by 55 percent and significantly improved our ability to deliver on time.”

**Punching gives a competitive edge**

This has obviously gone down well with Ripleg's customers. The Spanish company has positioned itself as an expert in punching in order to distinguish itself from its mostly laser-dominated competitors. “We love punching,” says Jordi Batlle. “Punching is a fast and cost-effective technology if you have efficient machines, the right tools and a creative approach to part design.” The father and his sons have put all these conditions in place over the years thanks to their passion for the business and the courage to invest in new machinery. Ripleg’s 7,000-square-meter production facility caters to customers from sectors such as heating, ventilation and air-conditioning, food, medicine and packaging. It offers the complete sheet-metal process chain, supplying customers with highly complex parts and complete assemblies. “Providing good advice is an essential part of what we do,” says Jordi Batlle. With our punching expertise and efficient processes, we help our customers cut costs.”
Taking the right path together

Nobody expected the coronavirus pandemic – but it shows that the Battles are on the right track with their smart factory. The crisis has encouraged them to continue with their hardware and software connectivity drive over the course of the coming year. They have also had a positive response from their employees, who are closely involved in the change management process. Some 75 employees work in the factory, each of them independently processing orders from start to finish. That gives them a greater understanding of the processes and the goal behind the optimization measures. It also fosters commitment and encourages people to take the initiative, says Batlle: “Our employees are the key to our success. We all pull together when it comes to making improvements. Getting better at what we do is something we intend to continue, which is why we have already booked our next smart factory consulting session!”

The smart factory consulting session is a good way to identify potential for improvement.

Jordi Batlle, CEO Ripleg S.A.U.

TRUMPF Smart Factory Consulting

Ripleg S.A.U. has already made good progress with the digitization of its production operations. But they still had to decide where to start and chart their own individual course. TRUMPF’s smart factory consulting service supports customers in developing appropriate solutions to meet their specific goals.
In brief

Journey to the smart factory

The right amount of digitization—and the specific path toward leaner processes and greater transparency—is different for each customer. TRUMPF’s smart factory consulting service supports businesses on their journey by providing access to suitable software, automation technologies and largely autonomous systems as well as advice on processes and implementation. Digitization is about so much more than just controlling systems. It also involves simplifying processes and identifying potential opportunities for improvement. Four key steps can help companies achieve their smart factory goals.

Four steps to a smart factory:

1. **Create transparency**
   The first step lays the foundations for successful digitization. It involves defining key performance indicators (KPIs) and periodically collecting and evaluating data in order to spot anomalies. TRUMPF provides tools to simplify these processes: TRUMPF machine apps and TruTops Monitor.

2. **Monitor KPIs and examine processes**
   The next step is to cast a critical eye over your company’s production processes and KPIs. Anomalies can be spotted quickly by periodically reviewing these key indicators. What is causing the anomaly? Why are some parts having to be scrapped? Does it always happen at the same stage of the production process? The more questions you ask, the easier it is to get a feel for the right target values.

3. **Set goals and control production based on KPIs**
   Every journey needs a destination. It’s important to define where you are heading as you move toward a smart factory. As soon as you have access to production KPIs and targets, your company can put them to use. Often referred to as shop floor management based on lean principles, this approach streamlines and simplifies production processes for the long term.

4. **Lock in continuous development**
   Locking in continuous improvement is the key to keeping your processes optimized in the future. Never forget your employees: keeping them in the loop and involving them in change is crucial to ensuring that everyone pulls together. To achieve sustainable digitization, it is necessary to focus on continuous change, with the journey as the destination. Step by step, one KPI at a time.

About the customer

Rippleg S.A.U.
C/ Esteve Boix, 3
Poligono Mas d’en Bosch
17500 Ripoll, Girona, Spain
CEO: Jordi Batlle
www.ripleg.com

Machinery

• 2 x TruMatic 5000 with SheetMaster
• 1 x TruMatic 7000 with SheetMaster
• 2 x TruBend 5130 with BendMaster
• 2 x TruBend 7036
• 1 x TruBend 5085
• 1 x TruBend 5130
• 3 x towers with a total of 90 storage compartments
Based near Alexandria, the Egyptian company Al-Ahmadeya and its 300 employees used the coronavirus hiatus to push ahead with their long-term goal of automating all their processes. The results include a new production facility and four new TRUMPF machines – just as Egypt is immersed in one of the most serious economic crises in its history. Following in his father’s footsteps, the metal industry has been home to Managing Director Mohamed Saleh since he was a child. His commitment highlights Egypt’s market potential even, or perhaps especially, at this time of crisis.

You acquired four TRUMPF machines during the coronavirus crisis, a time when most other companies were reluctant to invest in costly machinery. What inspired you to make the purchase?

Mohamed Saleh: When the market hits rock bottom, it’s a good time to invest because things can only get better. Companies that do nothing during the crisis will eventually start looking for work. But when things improve, we want to be in a better position, ready to acquire a good share of the market and meet the market’s needs. You should never wait until a crisis is over to start investing. You might end up investing too late, and another crisis might hit by the time you are ready to act.

Sheet metal fabricators are increasingly turning to automation. For many companies, automation is the key to cost-effective production. How true is that for you?

MS: Around five years ago, I started using simple automation concepts on some of my standard machines. That improved the ergonomics for the machine operators and helped speed up production. Those improvements encouraged me to buy machines in the future that include an automation option. Investing in automation also gives you more reliable results. For example, if you load or unload a machine without automation, you always run the risk of damaging the sheets. Another of my top priorities was keeping my machine operators safe. We actually need fewer operators now on our individual machines, so my employees have more time to focus on important production tasks.

Has your investment also had a measurable effect on indicators such as productivity? Do you have any concrete figures?

MS: We’ve obviously seen huge improvements in productivity. Looking back over everything we’ve produced in the past five years, I would say it has increased by around 300 percent thanks to automation.
What kind of products does your company specialize in?

MS: Our company specializes in processing and selling sheet metal products. We’re well-known for our car trailer parts. We also produce storage tanks and car parts in high volumes.

When people talk about automation in sheet metal processing, their first thought is normally the big players in the US, China and Scandinavia. What is Egypt’s position in the international market?

MS: Egypt occupies a unique location that gives it a major role in the African, Arab and Mediterranean regions. The Suez Canal is an important hub for shipping, and Egypt itself is home to over 100 million people. It’s clear from all the ongoing investment programs with international businesses that we are a rapidly growing market. Al-Ahmadeya itself is one of the biggest sheet metal fabricators in Egypt. We’ve been working in metal forming and trading for many years, and now we’re investing in more new technologies than ever.

How would you describe the Egyptian sheet metal processing industry?

MS: The sheet metal business in Egypt is the same as everywhere else. It’s dictated by market requirements, which is why much of the recent high demand has been in construction, for example. One of the differences between the Egyptian market and the European markets is how we do business. In the past, most business in Egypt was based purely on spoken agreements and did not require written contracts. That’s changing now; we’re adapting and integrating into the international business world.

What are your long-term business goals?

MS: We have already invested in new production lines and added the new factory to keep our company growing. But our exact plans for the future are something I prefer to keep to myself (laughs). What I can reveal is that we are already working on some concrete plans and could well be looking at more subsidiaries in the future.

Thank you for talking to us, Mr. Saleh.

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TRUMPF Egypt

TRUMPF has always believed in being close to its customers. That’s why it has a team of experts on hand to support Egyptian companies such as Al-Ahmadeya. TRUe put together some fascinating facts about TRUMPF’s North African subsidiary.
Ahlan wa sahlan*, TRUMPF Egypt

The land of pyramids and pharaohs is primarily known as a tourist destination. But Egypt also boasts a fast-growing market for the manufacturing industry – fueled by initiatives such as the “New Cairo” project to create a new administrative capital. The planned city includes many buildings with elevators, air-conditioning units and sheet metal facades, offering plenty of job opportunities for sheet metal fabricators. TRUMPF has been actively engaged in this North African country for many years. In February 2020, it even opened its own subsidiary in Egypt. TRUe checked out this exciting location.

TRUMPF has been serving customers in Egypt for 40 years. It began by providing customer service remotely from its Ditzingen headquarters. Then, in 1999, the company opened a small office in the Cairo district of Heliopolis. In February 2020, TRUMPF opened its very own Egyptian subsidiary.

Learning by doing: the German University in Cairo (GUC) has a technology center in which TRUMPF has installed a number of machines to help students with their studies. The facility also serves as a showroom.

One of the challenges TRUMPF faces is the sheer size of the country. It takes a long time to travel from one customer to the next. By way of comparison, Egypt is almost three times bigger than Germany by area.

Customer details
Al-Almehaya
Megham, km 23
Alex Cairo desert road
Alexandria
CEO: Mohamed Saleh

Machinery
• TruLaser 5030 fiber with LoadMaster
• TruLaser 3040 CO2 with LiftMaster
• TruLaser 3060 with LoadMaster
• TruPunch 5000
• TruBend 3066
• TruBend 5230

* Hello in Egyptian
Peter Valkeneers and Yves Hesemans from Belgian outdoor product specialists **P&G Metaalwerken** have tailored their entire corporate structure toward **efficiency**. Not just for their **machines**, but also for their **employees**. That’s why they believe in heading home early every now and then – and limiting job interviews to one key question.

The cube-shaped building in the Belgian town of Heusden-Zolder doesn’t look much like a digital factory. Only the striking P&G logo on the front gives a clue to what’s going on inside – and it’s a lot more than you might expect from a little town in a former coal-mining region 80 kilometers east of Brussels. For the team at P&G Metaalwerken, digitization is part of day-to-day life. The company runs its production operations with just five machines and manages to generate sales of five million euros with just 22 employees. This is partly thanks to TruTops Fab software, plus an owner who firmly believes that his employees should be able to handle workflows end to end – even on their own. “I’m actually kind of lazy,” quips Production Manager Yves Hesemans, who is also in charge of software implementation. “I like to get things done as quickly as possible. If I can finish a task in two mouse clicks, why would I want to use ten?”

**Greater transparency through software**

Just four years have passed since Peter and Yves decided to completely revamp their production operations and make everything themselves in-house – preferably digitally, without any unnecessary use of paper. In 2016, they invested in a new laser cutting machine and TruTops Fab software. Since then, P&G Metaalwerken has taken the principles of reducing unnecessary process steps and maximizing results and turned them into a key part of its corporate philosophy. In 2019, they expanded their portfolio with a TruLaser Tube 7030 laser tube cutting machine and a TruBend 5170 bending machine and hooked both of them up to the software. Yves was immediately impressed by the versatility of TruTops Fab – for example the ability it gave him to control processes from anywhere and at any time, from customer orders to shipments. As well as receiving round-the-clock updates on any problems or malfunctions, he also has a clear overview of end-to-end material flow and easy access to inventory management. By finding an easy way to control its entire production process, P&G Metaalwerken has made some significant time savings.

**Keep experimenting**

P&G Metaalwerken specializes in the production of indoor and outdoor living products. The company also designs garden struc-
every product himself before it is introduced into the market. So the fact that his garden contains so many products from P&G Metaalwerken’s outdoor living catalog comes as little surprise.

Five hours of work are better than eight

Yves is certainly open to accepting new things, but it is his insistent eye for detail that marks him out as a production manager. He is the in-house expert on TruTops Fab. “When it comes to software, we have one clear goal,” says Yves bluntly. “Forget about using just 20 percent of the functions – we try to use 100 percent of them.”

The joy of experimenting and exploring each and every possibility has become a defining feature of P&G Metaalwerken. “The market forces us to make decisions. Sometimes we make the wrong ones, but we still learn from them. Efficiency is obviously key, but even more important than a new machine is having people who know how to use it properly. A tool is only ever as good as the people who use it.”

This mentality is also reflected in day-to-day life at P&G. The employees regularly receive in-house training to equip them for new tasks. They are also encouraged to question and probe their own work processes. “When people apply for a job nowadays, I basically ask just one question: ‘Are you someone who works hard for eight hours without reflecting on what you’re doing? Or someone who works just five hours because you found a way to work better?’”

I like to get things done as quickly as possible. If I can finish a task in two mouse clicks, why would I want to use ten? ”

Yves Hesemans, head of production P&G Metaalwerken

Connected processes help Peter Valkeniers and Yves Hesemans save considerable amounts of time – for example, when producing this soap bottle holder for a valued client.
As efficient as possible

Although P&G only recently acquired its first cutting-edge TRUMPF machines, Peter Valkeneers is already pondering the purchase of a TruLaser Center 7030 to get the kind of speed that will boost productivity even further. P&G also has the growing market for laser tube cutting in its sights. Yves sums up his attitude to work in just four words: “As efficient as possible.”

“...the drive for efficiency occasionally allows Peter Valkeneers and Yves Hesemans to finish work by three o’clock in the afternoon.”

Yves Hesemans, head of production P&G Metaalwerken

Easy, fast, automatic: Programming Tube

P&G Metaalwerken has always relied on cutting-edge software solutions to make day-to-day work more efficient. That’s where TRUMPF excels – and now it also offers a new software package specially designed for laser tube processing. The software executes many of the steps in the process automatically, making it easier to tackle large numbers of parts without complex programming.
In brief

One-click tubes

Programming Tube, the new software package for laser tube processing, is particularly user-friendly and intuitive. Programming is less complex because the software performs many steps in the process automatically. TRUe checked out Programming Tube to see how users can benefit.

3D design made simple

Programming Tube reads files in all standard formats, so users can either import tubes and complete assemblies or design them from scratch. Bend connections in complex tube designs can be realized at the press of a key. These connections replace designs that would normally consist of multiple individual tubes. Assigning joining and fastening elements between tubes is just as quick and easy. These simplify downstream manufacturing steps during assembly, welding and other processes, helping to prevent errors and cut costs.

Generate NC programs automatically

Programming Tube allows users to design tubes completely in 3D. Once the design process is complete, the software automatically does the programming work. This makes life easier for programmers by automatically determining how the laser tube cutting machine should eject parts and tap threads. The Programming Tube software creates the NC program from the thread parameters, including the necessary tools and the right processing sequence. Thanks to the intuitive interface, users can simply click on the 3D-simulated part and modify the parameters directly instead of laboriously typing them into a dialog window. They can also adjust the approach position and make any subsequent changes in the 3D simulation that may be necessary.

1. STEP Import or create drawing

2. STEP Automatic programming

GOOD TO KNOW

Users can make changes directly in 3D. Couldn’t be simpler!

Programming Tube allows users to design tubes completely in 3D. Once the design process is complete, the software automatically does the programming work. This makes life easier for programmers by automatically determining how the laser tube cutting machine should eject parts and tap threads. The Programming Tube software creates the NC program from the thread parameters, including the necessary tools and the right processing sequence. Thanks to the intuitive interface, users can simply click on the 3D-simulated part and modify the parameters directly instead of laboriously typing them into a dialog window. They can also adjust the approach position and make any subsequent changes in the 3D simulation that may be necessary.

Customer details

P&G Metaalwerken
M. Scheperslaan 125
3550 Zolder
Belgium
Phone: +32-11-536-677
info@pgmetaalwerken.be
www.pgmetaalwerken.be

Machinery

• TruLaser 3030
• TruBend 5170
• TruLaser Tube 7000
TRUMPF’s new smart factory in Ditzingen will offer a high-tech mix of lasers, machines, robots and billions of bytes. Spread over 5,000 square meters – equivalent to the size of 20 tennis courts – it will showcase 30 machines that interact and communicate with each other seamlessly.

Smart end to end: from job receipt to final delivery

It’s late afternoon in midsummer 2020. Tobias Reuther strides through the four production halls at a rapid pace. There’s a smell of welding in the air, and our route is lined with boxes to the left and piles of cables to the right. Today’s preview tour has been organized for the TRUe editorial team, and the 38-year-old head of the TRUMPF Customer Center in Ditzingen is clearly brimming with confidence that the smart factory will be up and running in just a few months. “Based on our own production of parts for TRUMPF machines, this is where we’ll show customers what efficient sheet metal processing looks like. Everything the customer sees here really works. Apart from the odd occasion when something goes wrong of course!” he says with a smile, pointing to the smart watch on his wrist. “Whenever a problem crops up in the automated production process, I receive a notification. That ensures we lose no time in rectifying the problem.” Reuther was involved in developing TRUMPF’s smart factory in Chicago, so he speaks from experience. He guided thousands of customers through the production facilities there – and he recently turned a digital sceptic into an Industry 4.0 disciple by solving a real case with a digital clock.

Smart production halls: Tobias Reuther, head of the TRUMPF Customer Center in Ditzingen explains how the automated production process is reflected in the way the halls work.

We don’t do all this just for show
we show the customer what cutting-edge production solutions look like – and the whole process begins right here." Reuther has come to a halt in front of a screen next to the glass box, on which a new job is displayed every few minutes. "It all starts with the customer query, which can be entered directly into our TruTops Fab production software." He points to the glass box, which contains three workstations positioned in front of giant screens. "This is the Control Center. It's where we bring everything together to create a complete overview of all the machines and processes in the smart factory. Our employees analyze every query in detail and derive various potential solutions based on that analysis," says Reuther, advancing a few steps further to a green shipping container cut open on one side. "This is the Application Center, where our experts discuss the design with direct reference to the part itself. It's normally possible to optimize a few things by modifying the part design," says Reuther and grins. "Despite the rise in automation, what we have here are people, not robots." "Our customer still needs to be able to touch the part and check it’s exactly right." Once the customer gives their approval, the part can go straight into production planning. Everything runs fully automatically. TruTops Fab controls the entire production chain, from planning, programming and production right through to dispatch of the finished products.

**Progressive automation**

Reuther knows that some 70 percent of all TRUMPF customers employ fewer than 25 people. Even so, it’s still worth taking a tour of the smart factory to get an idea of what’s possible. "The customer doesn’t necessarily have to turn their entire process chain on its head. They might simply decide to cherry-pick individual elements or talk to a consultant about a specific problem. We’ve deliberately divided the smart factory into three areas, with the level of automation increasing from one area to the next," says Reuther, leading us onto the actual shop floor. Passing through a production hall populated by stand-alone machines, we enter another hall containing semi-automated machines and come to a halt in the fully automated, autonomous process zone. "This is where customers can see for themselves how we connect up different types of machines. It’s plug and play at its very best!”

**Positioning and smart logistics**

The various cutting and bending machines in the new TRUMPF smart factory are not only connected to each other, but also to a large-scale storage system and a series of automated guided vehicles. "The modern factory transport units made by our partner Jungheinrich carry parts and materials on Euro pallets back and forth between different docking stations on the various machines," says Reuther. Yet these factory transport units are just one element of TRUMPF’s new control system, which it describes as “smart material flow.” “This new solution aims to improve the efficiency of manufacturing processes and machine-to-machine logistics. It includes indoor positioning based on the Track&Trace system. This uses satellites on the factory ceiling and palm-sized markers to pinpoint the current location of each job with centimeter accuracy. To cover all the process steps in sheet-metal processing, TRUMPF is not only working with Jungheinrich – the smart factory in the Customer Center also collaborates with other partners including InspecVision, ARKU and STOPA.

"We don’t do all this just for show. Connectivity does a great job of making the manufacturing process fully transparent, so employees can access all the information at any time on a tablet or smartphone as they move through the production hall. Processes can be planned more reliably when you have automation and a consistent overview of your production. It gives customers greater flexibility and efficiency on the shop floor, which is a huge advantage, especially for small batch sizes," says Reuther. Connected production has boosted efficiency by 30 percent. Similar improvements have been recorded at a customer’s production site, especially in indirect processes. From October 2020, customers will be able to experience the smart factory firsthand at the new Customer Center to see for themselves how cutting-edge manufacturing solutions work. Reuther is confidently looking forward to the opening and showing no sign of losing his cool, despite the summer heat. A total of 50 TRUMPF employees will be on site from this October to deal with incoming queries and work together with customers to develop the best solutions to overcome the challenges they face.

30 percent higher efficiency

"We don’t do all this just for show. Connectivity does a great job of making the manufacturing process fully transparent, so employees can access all the information at any time on a tablet or smartphone as they move through the production hall. Processes can be planned more reliably when you have automation and a consistent overview of your production. It gives customers greater flexibility and efficiency on the shop floor, which is a huge advantage, especially for small batch sizes," says Reuther. Connected production has boosted efficiency by 30 percent. Similar improvements have been recorded at a customer’s production site, especially in indirect processes. From October 2020, customers will be able to experience the smart factory firsthand at the new Customer Center to see for themselves how cutting-edge manufacturing solutions work. Reuther is confidently looking forward to the opening and showing no sign of losing his cool, despite the summer heat. A total of 50 TRUMPF employees will be on site from this October to deal with incoming queries and work together with customers to develop the best solutions to overcome the challenges they face.

30 percent higher efficiency

Tobias Reuther, Head of Customer Center, TRUMPF Ditzingen

**Despite the rise in automation, what we have here are people, not robots.**

Tobias Reuther, head of Customer Center, TRUMPF Ditzingen
Sorting Guide turns TRUMPF into AI Champion

TRUMPF was recently selected as an “AI Champion of Baden-Württemberg.” The company received the award for its “Sorting Guide” camera-based assistance system that makes it easier to sort sheet metal parts. Baden-Württemberg’s Minister of Economic Affairs, Dr. Nicole Hoffmeister-Kraut, presented the award in an online ceremony due to the coronavirus pandemic. “Artificial intelligence is the key technology of the future and hugely important in Baden-Württemberg’s quest to become a major leading business location,” said Hoffmeister-Kraut. The Sorting Guide helps workers remove and sort sheet metal parts. Using an AI solution, it identifies which part the operator has removed. The camera system recognizes parts from their colored markings, which represent a specific customer order or downstream process. This speeds up the process and ensures workers stack the right cut parts on the right pallets every time. Aimed at companies as well as research institutes with a close-to-market focus, the AI Champions competition formed part of the “AI for Industry” initiative launched by Baden-Württemberg’s Ministry of Economic Affairs.

TRUMPF records drop in sales

The TRUMPF Group posted a drop in sales of around eight percent to 3.5 billion euros at the end of the 2019/20 fiscal year on June 30, 2020. This compares to sales of 3.8 billion euros in fiscal year 2018/19. Orders received also fell from 3.7 billion to 3.3 billion euros, a drop of around 11 percent. Group head count remained approximately the same at 14,300 employees. There were also no changes from the prior year in the company’s best-selling markets: Germany led the way with sales of around 610 million euros, followed by the US (approx. 490 million euros) and the Netherlands (approx. 460 million euros). “Since the fall of 2018, we have been feeling the effects of a weakening economy and the reluctance of many customers to invest, particularly in Germany,” says Nicola Jostingen-Kämmler, chairwoman of the TRUMPF Managing Board. “We attribute this to the uncertainty associated with the structural change in the automotive industry, among other things. It has been our observation that coronavirus has intensified this trend and acted like a catalyst – a crisis within a crisis, so to speak. The central issue here is the uncertainty about the pandemic’s duration and the appropriate measures on the part of government.” TRUMPF responded to the late-2018 measures on the part of government. “The virus has intensified this trend and acted like a catalyst – a crisis within a crisis, so to speak. The central issue here is the uncertainty about the pandemic’s duration and the appropriate measures on the part of government.” TRUMPF responded to the late-2018 measures on the part of government. “The virus has intensified this trend and acted like a catalyst – a crisis within a crisis, so to speak. The central issue here is the uncertainty about the pandemic’s duration and the appropriate measures on the part of government.”

TRUMPF receives HERMES AWARD

TRUMPF recently received one of the most prestigious international industry awards for “omlox,” the new open standard for location services. Sixty industry partners were involved in developing omlox. As a global, open and interoperable solution, omlox unites all the standard location services available on the market, including UWB, BLE, RFID, GPS and 5G. The information from the various positioning technologies is networked together to improve process efficiency. Each year, Hannover Messe presents its HERMES AWARD to celebrate innovative and outstanding products. omlox simplifies logistics and achieves major efficiency gains in digital manufacturing.

TRUMPF and Mauser: close partners for over 50 years

TRUMPF Managing Board. “We attribute this to the uncertainty associated with the structural change in the automotive industry, among other things. It has been our observation that coronavirus has intensified this trend and acted like a catalyst – a crisis within a crisis, so to speak. The central issue here is the uncertainty about the pandemic’s duration and the appropriate measures on the part of government.” TRUMPF responded to the late-2018 measures on the part of government. “The virus has intensified this trend and acted like a catalyst – a crisis within a crisis, so to speak. The central issue here is the uncertainty about the pandemic’s duration and the appropriate measures on the part of government.”

TRUMPF and Mauser have been mutually beneficial over many years, a fact that was highlighted in a recent event held in Stuttgart earlier this year. The event was a handwritten order from Mauser presented to TRUMPF Chief Digital Officer Mathias Kammüller, chairwoman of the TRUMPF Managing Board. “We attribute this to the uncertainty associated with the structural change in the automotive industry, among other things. It has been our observation that coronavirus has intensified this trend and acted like a catalyst – a crisis within a crisis, so to speak. The central issue here is the uncertainty about the pandemic’s duration and the appropriate measures on the part of government.” TRUMPF responded to the late-2018 measures on the part of government. “The virus has intensified this trend and acted like a catalyst – a crisis within a crisis, so to speak. The central issue here is the uncertainty about the pandemic’s duration and the appropriate measures on the part of government.”

Successful partner: pistons from the 3D printer

TRUMPF and MAHLE have achieved a new milestone in engine manufacturing. The three project partners 3D printed the pistons for a Porsche 911 GT2 RS engine and successfully operated them in the vehicle. The optimized distribution of the material created a bionic structure that would have been impossible to produce by conventional forging or casting. The project made use of an aluminum powder that was provided by MAHLE. The laser specialists at TRUMPF deposited the aluminum powder layer by layer, using the laser to weld it together at specific points to ultimately create the innovative piston. The pistons are ten percent lighter than standard forged pistons yet are still capable of withstanding the enormous loads imposed on them by the GT2 RS’s high-powered engine.

Porsche, TRUMPF and MAHLE have achieved a new milestone in engine manufacturing. The three project partners 3D printed the pistons for a Porsche 911 GT2 RS engine and successfully operated them in the vehicle. The optimized distribution of the material created a bionic structure that would have been impossible to produce by conventional forging or casting. The project made use of an aluminum powder that was provided by MAHLE. The laser specialists at TRUMPF deposited the aluminum powder layer by layer, using the laser to weld it together at specific points to ultimately create the innovative piston. The pistons are ten percent lighter than standard forged pistons yet are still capable of withstanding the enormous loads imposed on them by the GT2 RS’s high-powered engine.
Smart orders with the Easy Order app

Arnsberg-based company Spiekermann Metallverarbeitung GmbH had one simple question: How can we optimize our spare part order process? The Easy Order app proved to be the perfect solution. Nowadays, it takes workers just five minutes to order a new part – down from a pre-app figure of 45 minutes.

The order process for spare parts and consumables was taking far too long. “We had no real overview of the orders we were placing, so parts were often ordered twice, or not at all. Some deliveries to customers were being delayed by up to a week,” says Johann Klassen, who is responsible for costing at Spieker-mann. “The production stoppages were simply becoming unaffordable,” says Klassen. In 2018, the company decided to install the TRUMPF Easy Order app. This has made the order process almost ten times faster.

Easy and intuitive

Previously, workers had to submit a slip of paper to their shift supervisor to order a new part. This made the process longer. So too did the time spent waiting for managers to approve the purchase and hunting for order numbers in catalogs and Excel spreadsheets. This often led to delays, especially when multiple orders were submitted at the same time. The Easy Order app eliminated all those bits of paper and digitized Spiekermann’s order process. Now, machine operators can order consumables via the app without leaving the shop floor. “We didn’t need any special training because the app is so intuitive. Our workers can simply choose the right part for their machine from a catalog and click to request an order,” says Klassen. Ordering punching tools is even easier because they come with a data matrix code. All the worker has to do is scan the code, confirm the tool and then order it in the app.

Scan and order:
The Easy Order app uses data matrix codes to identify which punching tool to order. This makes repeat orders much easier.

90% less time spent on ordering

Going digital: Johann Klassen uses the Easy Order app to reduce the time spent ordering spare parts.

No more tool chaos

A product starts with an idea. Next comes the design. Vinzenz Trenkle has embedded design deep within the DNA of his company form.in – and now a TruBend 5130 with integrated ToolMaster is helping this creative innovator turn his ideas into reality.

Greater flexibility

The ToolMaster helps the company achieve dynamic workflows by simplifying tool handling. “Making prototypes used to require lots of coordination with the production planning team to avoid stoppages, especially when we were making complex batches,” says Hugo Aschwanden, executive partner at form.in GmbH. “But with the ToolMaster, we have far more flexibility, so even the most complex sequence of tool changes only takes a few minutes.”

The ToolMaster from TRUMPF can hold more than twice as many tools as its predecessor and can switch to a new tool element in a matter of seconds. Inside is an average of 65 meters of space for bending tools, all protected from corrosion and ready for use when required. Alongside standard tools, users can also store ACB sensor tools and special tools and set them up fully automatically.

Data matrix code identifies jobs instantly

As well as the ToolMaster, form.in also decided to add data matrix codes to parts to make production even more efficient. This industry standard for identifying parts helps form.in complete orders even faster, because jobs can be read directly from the part itself without having to search through documents.

In future, form.in hopes to make even more effective use of the ToolMaster, harnessing this innovative technology to create even more exciting designs.

Investing in the future

form.in GmbH was founded in the German municipality of Eschbach, near Freiburg, in 1991. The company has built a solid reputation as a supplier to industry and start-ups, combining metal and plastics processing under one roof. It currently employs between 30 and 40 people. The company’s success is reflected in its growing stock of machinery. This includes a TruMatic 7000 with fully automated STOPA storage system and a TruBend 5130 with ToolMaster, which came online in November 2019.

Time for design: Hugo Aschwanden, executive partner at form.in GmbH, and CEO Vinzenz Trenkle can work much faster now they have the ToolMaster – and that gives them more time to spend on developing creative ideas.

Investing in the future

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Check it out!
A COMMON LANGUAGE: OMLOX

Computers and other devices can communicate easily with each other thanks to USB interfaces, but locating technologies have lacked a similar common language—until now. What was missing was a logistics language that would allow communication between devices and software from different vendors. To fill this gap, TRUMPF and its partners recently launched the new location technology standard omlox. So what’s the story behind this global innovation?

omlox is a made-up word, not an acronym or initialism.

Many of today’s radio technologies only work in isolation: omlox enables all location data to be displayed in a uniform coordinate system. This allows industry customers to integrate devices from different vendors, thereby saving time and costs.

omlox can be used to track the position of forklift trucks, drones, automated guided vehicles and tools from different vendors with one and the same infrastructure.

Stronger together:
60 companies from all over the world are partners in the omlox project. 18 sponsors backed its market launch.

Industry partners participating in the new standard include companies from across Europe, Asia and the US.

omlox does not necessarily require the purchase of new equipment. The interface can also be adapted for some older systems.

1,500 members

Hanover Messe 2020 demonstrated the enthusiasm for omlox among industry professionals by presenting the standard with the HERMES AWARD. This international technology prize is awarded to outstanding products and innovative solutions.

To foster ongoing global development of the omlox standard, the founding partners handed the project over to the PROFIBUS user organization. PROFIBUS has been supporting industry standards for 30 years. It operates worldwide with 1,500 members and 27 national subsidiaries.
The quantum world is notoriously difficult to understand. Those who succeed in cracking the code quickly realize that quantum technology will be a game changer, a fertile breeding ground for a whole raft of new technologies. This has long been clear to Michael Förtsch, CEO of the start-up Q.ANT. By harnessing groundbreaking photonic solutions, this wholly-owned TRUMPF subsidiary aims to make quantum technology accessible to industry and highlight the potential it offers for the future.

Mr. Förtsch, the German government has already pledged to spend at least 650 million euros on research into quantum technology. Why do you think this topic is so important?

MICHAEL FÖRTSCH: It’s great that they’re investing in this field, because otherwise I might have been out of a job (laughs). This is definitely a pioneering step by the government, because it’s the first example of the public sector boosting the commercial market by specifically supporting quantum technology products. Quantum technology is currently driving progress in four key areas. The first – quantum computing – won’t replace traditional computing, but will instead offer an additional method of calculation based on quantum mechanics. The second area is simulation. This is where we’ll see quantum technology become increasingly important as a way of improving predictions in fields such as materials research. The final two key areas are data communication, which we will use differently and more efficiently in the future, and sensor systems, which will help us teach machines how to interact better with their environment as we move forward. This is particularly significant for us here in Germany, because it’s one of the key advantages we have over the US. We’re engineers at heart, so we know how to develop and combine hardware and apply it in an industrial context. I firmly believe that quantum technology could give Germany the same boost as the Internet did to the US economy. Right now the public might find the terminology confusing, but government investment can help smooth the path from research to commercial products and make the whole topic more accessible to a wider audience.

“Quantum technology could give Germany the same boost as the Internet did to the US economy.”

Michael Förtsch, CEO of the start-up Q.ANT.
Your work relies heavily on lasers. How exactly do you use them?

MICHAEL FÖRTSCH: A quantum is the smallest indivisible unit of energy. In the case of lasers, the quantum unit is a photon. At Q.ANT, we’re building systems that act as electron–photon–electron converters. We use these beam sources to give light precisely defined properties. No photons step out of line in our system – we tell them exactly what they have to do! Once we have converted the photons back into electrical signals, we make them available to our customers to help them create better, faster, more accurate and more precise product ideas.

Would you venture to give us a glimpse into the future? Where will quantum technology be 50 years from now?

MICHAEL FÖRTSCH: By the time I’m 85, I hope we’ll have succeeded in curing major diseases such as cancer and dementia using quantum technology. It’s conceivable that we’ll have learned how to use sensor systems to analyze the human body and all its interactions in ways we can’t even imagine today. That would enable us to cure diseases we have been researching for centuries, such as cancer and dementia.

Thanks for talking to us!

How quantum technology works: the principle of entanglement

A quantum is the smallest indivisible unit of energy. The quantum unit of light, for example, is a photon. Entanglement arises when two quanta are inextricably linked, such that any change to one of them also inversely affects the other, even when they are separated by a great distance.

Albert Einstein was so irritated by the phenomenon that he described it as “spooky action at a distance.” Today it promises to deliver radically new technical solutions. Examples include extremely precise measuring devices, significantly enhanced security for data communications, and computers that are substantially more powerful.

Growing market for quantum sensors

The market for quantum technology is still in its infancy, and research instruments continue to be its primary focus. According to acatech, the German national academy of science and engineering, the size of the quantum sensor market by 2023 is expected to be €1.15 billion. By 2028, this is forecast to rise to €1.94 billion, around 100 to 150 million euros a year are currently invested in this kind of laboratory equipment. But as major companies such as Bosch, Siemens and TRUMPF begin to industrialize quantum technology, the market is likely to grow steadily. Preliminary forecasts for the quantum sensors market suggest it could be as big as €4.5 billion by 2028 – though, as acatech notes, more optimistic forecasts predict it could surge to 4.5 billion euros.

Quantum technology for industry: Q.ANT

The start-up Q.ANT is working on the industrialization of quantum technology. Its goal is to move quantum technology from lab to fab by harnessing new photonic technologies. Sensor systems, imaging techniques, data security and computing are just some of the potential applications. In the future, the company hopes its technology will facilitate microscopy of living cells and accelerate autonomous driving by helping vehicles determine their own position with millimeter accuracy. The start-up’s partners include major corporations from the pharmaceutical, semiconductor and automotive industries. The company employs around 15 people and is headquartered in Stuttgart-Vaihingen.

A Q.ANT technician examines a crystal with tiny light channels. In the future, this could lead to innovations such as microscopes that can perform novel forms of cell analysis in medicine.
In May 2020, TRUMPF entered into partnership with InspectVision, a company based in Northern Ireland. InspectVision’s Planar 2D inspection machine measures parts and instantly displays deviations from the target geometry. It can also reengineer the part into a CAD file based on the measurement results. Planar 2D is robust and extremely fast. It is easy to operate and can be used directly on the shop floor. As well as measuring blank contours, the inspection system also enables users to capture 3D measurements of finished bent parts. Plans are underway to further expand the portfolio of solutions that fit the smart factory world, providing customers with a measuring solution that is fit for the future. “InspectVision’s product is the perfect fit for our portfolio of solutions,” says TRUMPF product manager Dennis Specht.

Measuring system for the smart factory

TruLaser Series 5000 now offers 12 kilowatts of power

In the heart of the factory, TRUMPF is pushing productivity further with the launch of a new model in its TruLaser Tube Series. The new model, the TruLaser Tube 5000 fiber, achieves its maximum power of twelve kilowatts, making it the most powerful tube laser from TRUMPF. The new machine has been optimized to process thicker, heavier tubes than its predecessor. To achieve this, TRUMPF increased the maximum loading weight to 25 kilograms per meter. The new machine can process heavier tubes, cutting machine can also handle bigger, thinner tubes than its predecessor. TRUMPF’s new Laser Tube 5000 fiber machine can process 4.5-inch tubes instead of the standard three-kilowatt version. The new machine has been optimized to process thicker, heavier tubes. To achieve this, TRUMPF increased the maximum loading weight to 25 kilograms per meter. The new machine can process thicker, heavier tubes than its predecessor. TRUMPF’s new Laser Tube 5000 fiber machine can process 4.5-inch tubes instead of the standard three-kilowatt version.

Easier way to report service incidents

The TRUMPF customer portal has a new feature called “My service calls.” Designed as the desktop equivalent of the Service app, it enables users to view, manage, and report service incidents in just a few clicks. Each incident is forwarded directly to the engineer responsible, who then reports back by phone. Any staff with access to the TRUMPF account can check the details of the service call and get updates on progress. “My service calls” also generates a history of all incidents reported to date. This boosts transparency, saves time, and facilitates cooperation among workers. Users can submit service calls around the clock. Cases submitted at night are processed first and the bottom of the sheet. To achieve this, TRUMPF increased the maximum loading weight to 25 kilograms per meter. The new machine can process heavier tubes than its predecessor. To achieve this, TRUMPF increased the maximum loading weight to 25 kilograms per meter. The new machine can process heavier tubes than its predecessor. TRUMPF’s new Laser Tube 5000 fiber machine can process 4.5-inch tubes instead of the standard three-kilowatt version.

Prompt help with repeat orders

Operators can now use their cell phone cameras to quickly identify original parts for their machine. Object recognition is a new feature called “My service calls.” Designed as the desktop equivalent of the Service app, it enables users to view, manage, and report service incidents in just a few clicks. Each incident is forwarded directly to the engineer responsible, who then reports back by phone. Any staff with access to the TRUMPF account can check the details of the service call and get updates on progress. “My service calls” also generates a history of all incidents reported to date. This boosts transparency, saves time, and facilitates cooperation among workers. Users can submit service calls around the clock. Cases submitted at night are processed first thing the next morning.

TRUMPF and Fraunhofer IPA develop AI solutions for sheet metal processing

TRUMPF and the Fraunhofer Institute for Manufacturing Engineering and Automation IPA have formed a research alliance that is set to run until 2025. Their joint goal is to develop artificial intelligence solutions for connected sheet metal processing. Some two million euros of funding will be available for the project over the next five years. “TRUMPF’s mission is to further extend its AI leadership in sheet metal processing. To that end, we have already started investing in the kind of future technologies that will drive major efficiency gains,” says Thomas Schneider, managing director of development at TRUMPF Werkzeugmaschinen. TRUMPF and Fraunhofer IPA began working on smart factory topics five years ago. They will continue to pursue their existing projects within the framework of the new research alliance.

TRUMPF has launched a new version of its TruLaser Tube 5000 fiber machine. As well as being faster and offering more automation features, the new laser tube cutting machine can also handle bigger, heavier tubes than its predecessor. To achieve this, TRUMPF increased the maximum loading weight to 25 kilograms per meter. The new machine can process 4.5-inch tubes instead of the standard three-kilowatt version. TRUMPF’s new TruLaser 3000 fiber is set to be launched this fall. The punch press includes the patented Delta Drive, which makes it just as compact as the TruPunch 1030. The machine’s high throughput makes it a cost-effective option even at low- to medium-capacity utilization. The TruPunch 3000 is equipped with a descending die, which prevents contacts between the die and the bottom of the sheet. Together with the brush table, this feature ensures outstanding part quality. The TouchPoint control panel makes the machine easy to use. As well as the new TruPunch 3000, this fall will also see the launch of a punch-laser machine, the TruPunch 3000 fiber.
Next-level service

It’s not easy to spot problems before they occur – so it can be tough to predict when a machine will need servicing. That’s why TRUMPF introduced its Transparency service agreement. This helps customers keep track of their machine data and prevents laser cutting machines from coming to a sudden standstill.

TRUMPF service agreement

The new TRUMPF service agreement helps customers optimize production by providing key information on the current status of individual components and the causes of malfunctions.

The Transparency agreement has been available for TRUMPF laser machines in Germany and the US at zero cost since April 2020. It will soon be extended to additional machines.

Condition Report


Data-driven diagnosis

Based on the complete history of a machine’s data, the TRUMPF technical support team uses data-driven diagnostics to identify and solve problems quickly and efficiently.

Smart Power Tube

TRUMPF continuously monitors the condition of the smart Power Tube. If the data shows that one of the tube’s components is close to failing, TRUMPF notifies the customer. This is an efficient way to prevent unplanned downtime.

Safety first

Keeping our customer’s data safe is a top priority. The TRUMPF data governance process stipulates which machine data TRUMPF is allowed to record and analyze. The more data TRUMPF crunches, the more accurately it can develop algorithms and improve monitoring. Ultimately, every customer benefits from the findings of the data analysis.

North Dakota-based Bobcat signed up for the service agreement several months ago. The US company is a leading provider of small construction machinery such as excavators and loaders. Production engineer Tom Lund sees the Transparency agreement as a useful tool. “We have weekly meetings on how long each of our machines has been in operation and use the information from the Condition Report to analyze any unexplained downtime. The Condition Report enables us to optimize production and predict maintenance requirements. It also helps minimize the number of service cases.”

The service agreement helps us reduce downtime and monitor the overall status of our machines.

Tom Lund, production engineer, Bobcat

Forging a future with 3D printing

The Indian family-owned company Magod Laser is renowned for its entrepreneurial vision. In the late 1990s, it took India’s laser-cutting market by storm – and now it has 3D printing in its sights.

Pioneers in laser cutting

Swamy Magod – managing director of the family business Magod Laser – has a restless curiosity. When he founded the company in Bengaluru in 1997, hardly any Indian companies were using lasers to cut sheet metal. But Swamy Magod knew right away that laser cutting was faster and more cost-effective than conventional methods. He decided to invest in his first TRUMPF machine, a TruMatic 2503. Today, the company has 25 TRUMPF machines and seven locations and is one of India’s leading exponents of laser cutting.

3D printing heralds new pioneering journey

Now the company is continuing its pioneering journey with additive manufacturing (AM), also known as 3D printing. Demand for metal 3D printing in India has been rising steadily in recent years. The market is widely regarded as price-sensitive, so companies appreciate the ability of AM to produce single pieces and complex components quickly and affordably. Growth in demand for 3D-printed products is particularly strong in the field of medical devices and dental restorations such as crowns, bridges and implants. Yet even though plastic 3D printing is well-established, there are still relatively few providers offering metal 3D printing. That’s something the Magod brothers were determined to change.

Experts in both technologies

Their decision to invest in a TruPrint 1000 from TRUMPF proved to be the perfect choice for the Indian market. Magod Laser uses this small-format 3D printer to make parts for medical devices as well as for the automotive and aviation industries. Magod now regards himself as a specialist in both technologies. “With 3D printing, there’s a limit to how big the parts can be, so we offer a combi- nation of additive manufacturing and laser welding. To make bigger parts, we simply weld several small parts together,” he says. Some customers in India are still skeptical about 3D printing, but the team at Magod Laser has had great success in convincing them of the benefits. Swamy Magod is particular impressed by their willingness to experiment with different techniques and materials. The Magod brothers’ enthusiasm for innovation is paying off once again, just like it did in the past with laser cutting. The family-owned company is perfectly positioned to play a leading role in the Indian 3D-printing market.
The water tank frame is a component in vehicle manufacturing that is traditionally assembled from multiple semi-finished products. Its production normally requires seven angle steel bars, one flat steel bar and four different process steps. This optimized sheet-metal solution reduces the number of steps to two, fabricating the finished part by bending one part instead of welding together eight different pieces.

Dominik Straus from the TRUMPF part optimization team explains the difference: “For big frames, it makes sense to weld pieces together. But for smaller frames, it is far more economical to replace all those semi-finished products with a single sheet-metal part. Despite the higher scrap rate, this makes more sense cost-wise because it reduces personnel costs. It also eliminates the need to coat the stainless steel.”

The water tank frame shown here is just 400 millimeters long, making it the perfect candidate for bending. By making the switch, the user reduced their costs by 65 percent.

SMART SAVINGS WITH TRUMPF PART OPTIMIZATION

“Less is more” would be a great motto for the philosophy behind TRUMPF part optimization. Through its part-design workshops and seminars, TRUMPF teaches users how to get the best out of their machines and parts in order to make their production more efficient and cost-effective. The ultimate goal is more quality at less cost.

In this series, TRUe will be highlighting various parts to show how this process works and what design principles users should focus on.

This issue: combining semi-finished products

The water tank frame shown here is just 400 millimeters long, making it the perfect candidate for bending. By making the switch, the user reduced their costs by 65 percent.

Dominik Straus
Technical sales and product management
Part optimization

Technology transformed into art. Presenting parts in a new light is something we do in every issue of TRUe.

This picture shows a square punching die as you’ve never seen it before. By taking this TRUMPF punching tool component out of its familiar environment, photographer Marian Mok helps us see it from an entirely new perspective.

ART
Efficiency of the blue ants

Ant colonies can reach gigantic proportions. The largest known colony consists of several billion ants – and spans over 5,800 kilometers. Now an ant colony from China is poised to break a new record: Ant Financial – with its logo of a blue ant – is gearing up for the biggest IPO of all time. The company is run by master-of-efficiency Jack Ma, a powerful and somewhat eccentric figure.

His story is remarkable. Struggling to make ends meet as an English teacher, Jack Ma discovered the Internet while on a visit to the US to promote his fledgling translation company – and within six months he had launched his Internet business China Pages. A few years later, in 1999, he founded Alibaba from his living room. Effectively a Chinese equivalent to Amazon, it harnessed AI-based algorithms to make the most efficient use of resources. Just three years later, the e-commerce website was already turning a profit. Subsequent ventures have included an online auction house, the online payment solution Alipay, and a rapid succession of other businesses. Determined to take efficiency to the next level, he came up with a smart way to connect all these online platforms together. By 2014, the former schoolteacher was ranked as the wealthiest person in China by the news agency Bloomberg. And that was before Alibaba had even gone public! When Alibaba eventually listed on Wall Street, the online tycoon saw his wealth increase by 687.8 percent. But that’s not the end of the story.

In 2014, he launched Ant Financial. Valued at 200 billion dollars, it is the world’s largest fintech company. And now it’s the blue ant’s turn to go public. You might think his multibillion-dollar fortune is already extraordinary enough, but Jack Ma is currently hoping to pull off a major coup by conducting a dual IPO. Instead of a traditional listing on the New York stock exchange, he plans to list Ant Financial in Hong Kong and Shanghai.

He may sound like a tough-as-nails businessman, but in fact Jack Ma has never been a typical tech CEO. He was a mediocre math student who failed his exams twice. The fast food chain KFC turned him down when he applied to work behind the counter, and Harvard also rejected the charismatic speaker on multiple occasions. At company parties, Ma likes to dress up as the Lion King, much to the delight of his employees. Some journalists call him “Crazy Jack.”

But the real gift of this teacher, philanthropist and business magnate is his knack for boosting efficiency by motivating people. “You see, you can do things that you have never done before.” He once said to a manager after encouraging him to stand on his head. Though he has also been known to cancel the annual bonus of those who fail to switch voluntarily from a competitor to his own messenger app! And he even requested that his wife stand down from her position as general manager of Alibaba and dedicate herself to being a full-time mom when it emerged their son was addicted to online gaming. He believes good leadership is something that must be taught. “Teachers always want their students to exceed them.”

Jack Ma will turn 56 on September 10. Ant Financial’s IPO – the biggest ever – will be a birthday party like no other. His employees are already celebrating, with 40 percent of the shares already rumored to be in their hands. If true, we could soon see thousands of those who fail to switch voluntarily from a competitor to his own messenger app! And he even requested that his wife stand down from her position as general manager of Alibaba and dedicate herself to being a full-time mom when it emerged their son was addicted to online gaming. He believes good leadership is something that must be taught. “Teachers always want their students to exceed them.”

Karl Thomas