Ahead of the curve

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ANNUAL REPORT

TRUMPF

TRUMPF GROUP

	2016/17	2017/18	Change from 2016/17 in percent
Sales *in € millions*	3,111.3	3,565.6	+14.6
Orders received *in € millions*	3,378.6	3,799.9	+12.5
Income before taxes *in € millions*	337.2	513.8	+52.3
Net operating margin before taxes *in percent*	10.8	14.4	–
Expenditure on fixed assets *in € millions*	200.4	216.4	+8.0
Expenditure on research and development *in € millions*	318.3	337.0	+5.9
Balance sheet total *in € millions*	3,088.4	3,469.8	+12.3
Equity *in € millions*	1,582.8	1,876.5	+18.6
Equity ratio *in percent*	51.2	54.1	–
Economic equity* *in € millions*	1,916.3	2,167.7	+13.1
Economic equity ratio *in percent*	62.0	62.5	–
Employees on June 30 *number*	11,883	13,420	+12.9

* Equity capital plus long-term loans from partners

KEY FIGURES

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AHEAD OF THE CURVE

ADDITIVE MANUFACTURING

ADDITIVE MANUFACTURING OF COMPLEX PARTS

Additive manufacturing offers tremendous potential in almost every industry because it simplifies the task of producing complex parts. That's why our TruPrint series systems are used in so many different sectors, including aircraft manufacturing, automotive, medical technology, and the tool and mold making industry. TRUMPF is perfectly positioned to drive forward metal 3D printing thanks to its expertise in mechanical engineering and its knowledge of lasers and digitalization. We have an excellent grasp of the two key processes used in additive manufacturing: laser metal fusion (LMF) and laser metal deposition (LMD). In LMF, a laser builds up the workpiece layer by layer from a powder bed; in LMD, it forms a melt pool on the component surface before a nozzle automatically adds the metal powder. The flexibility of these two approaches enables us to offer customers the most suitable solution for their particular application.

TruPrint 5000

EXTREME ULTRAVIOLET LIGHT

TRUMPF Laser Amplifier

HIGH-POWER LASER SYSTEMS FOR EUV LITHOGRAPHY

TRUMPF is helping to boost computing power. Working in close collaboration with ASML – the world's leading manufacturer of lithography systems – and optics specialist ZEISS, TRUMPF has developed a unique CO_2 laser system that is capable of processing over 100 wafers an hour. From mobile devices to autonomous driving, developers are faced with the challenge of packing more and more transistors on the semiconductors inside chipsets, and the size of semiconductor features is gradually approaching atomic dimensions. High-power laser amplifiers from TRUMPF play a key role in microchip fabrication. They help generate a bright plasma that supplies the extreme ultraviolet (EUV) radiation required for wafer exposure.

PRODUCT

MACHINE TOOLS

MACHINE TOOLS FOR FLEXIBLE SHEET METAL PROCESSING

Making machine tools for flexible sheet metal and tube processing is the biggest part of TRUMPF's business. Our portfolio includes systems for bending, punching, and combined punch and laser processing as well as laser cutting and laser welding applications. We offer machines and automation solutions that are tailored to our customers' needs, as well as consulting, finance and many other services that help them produce high-quality products reliably and economically. Our software solutions are designed to support every aspect of their sheet metal business – from design engineering to fully-fledged production control.

TruLaser 5030 fiber

LASER TECHNOLOGY

TruDisk

LASERS FOR MANUFACTURING TECHNOLOGY

From cutting and welding to marking and surface finishing, we have the right laser and the right technology for every industrial application. We can provide our customers with the tools they need to achieve innovative yet cost-efficient production processes. From macro to micro and nano scales, we approach our customers' needs on an individual basis, addressing the challenges they face with system solutions, software tools, application expertise, and consulting services. Our range of electronics products includes process power supplies for high-tech applications. Our generators convert electricity into whatever form our customers require for induction heating, plasma applications, and laser excitation, ensuring the right frequency and output in each case.

SEGMENTS

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AHEAD OF THE CURVE

Ahead of the curve

Irrefutable certainties are always in danger of being overthrown – and the world of business is no exception. The best example right now is perhaps digitalization. Its effects are changing business models and working methods at a dizzying pace, throwing long-established practices into question almost from one day to the next.

But for all of today's effusive talk of disruption, the truth is that the imperative of constant change has been with us ever since the modern era began – and "disruptive" has always been the best way to describe it.

One hundred years ago, theoretical physics turned our most basic scientific concepts upside down. On the heels of the theory of relativity came quantum mechanics, which rocked the very foundations of a Newtonian worldview that had previously been regarded as irrefutable. It suddenly became a lot harder to pin down the properties of space, time and matter with any degree of certainty.

The famous double-slit experiment – the inspiration for this year's cover – revealed a fascinating natural phenomenon, showing us that light exhibits properties of both waves and particles. "God does not play dice," protested Einstein when he first heard about the wave-particle duality. But even he turned out to be mistaken.

For TRUMPF, these extraordinary moments in the history of science illustrate why we are so determined not only to take up developments but, ideally, to be at the forefront of them. Only then can we keep giving our customers the genuine competitive edge they need to succeed.

One of the key pillars in our quest to achieve this is our focus on research and development. Our R&D/sales ratio is above 9 percent, which is well above the average for our industry. That includes research into microchip exposure with extreme ultraviolet light – what we call EUV technology – as well as additive manufacturing, in other words 3D printing of metal parts. We're hoping this research will keep us well ahead of the curve and ultimately enable us to write a new chapter in laser technology. That's why we have given these two topics the center stage in this year's annual report.

As a family-run company, we strive to maintain a good balance between the duality of tradition and new beginnings – and the figures for the past fiscal year show that we are well on track to achieving that. With earnings rising by 52 percent and a return on sales of 14 percent, we once again saw a major improvement over our prior-year performance. So much so that TRUMPF can look back on its most successful fiscal year ever.

My heartfelt thanks to everyone who contributed to this remarkable success – and I very much hope you enjoy reading this year's annual report.

DR. PHIL. NICOLA LEIBINGER-KAMMÜLLER
Chief Executive Officer (CEO)

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PHOTONICS

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CONTROL LIGHT AND YOU CONTROL THE FUTURE.

Some 1.7 million years have passed since the first torch illuminated the darkness. During that time, humans have steadily gained more and more power over light, learning to control it and to bend it to their will. Today, we find ourselves on the brink of deploying several new technologies that will shape our future – and all of them require us to utilize and enhance our control over light.

CAPTURING LIGHT

Prehistoric humans were powerless in the face of light. The only light they knew was that of the stars, lightning, volcanoes and fires – natural forces that were entirely beyond their control. They had no way of influencing how long light lasted, how brightly it shone, or whether it would shine at all. This situation remained unchanged for millennia. Then, around 1.7 million years ago, some brave and inquisitive individual poked a branch into the embers, lighting the first ever torch. Little did they know they were simultaneously lighting the fuse of mankind's control over light – and writing the first chapter in the history of what we now call photonics.

Early humans were completely powerless in the face of light.

THE AGE OF OPTICS

In the millennia that followed, humans focused on making light to drive away the darkness. Today, this is something we barely even think about: we simply flick the light switch and the filament or LED glows.

But at some point in the 17th century, we realized we wanted more from light than just brightness. We began to polish mirrors and to grind lenses and prisms, ushering in the age of optics. People learned to control, focus, scatter and split light, improving their vision by developing spectacles, refracting and reflecting telescopes, and microscopes. By the 19th century we had even begun to draw with light and to create photographs and movies.

Eventually people began to control, focus, scatter and split light.

THE NATURE OF LIGHT

At the same time, researchers worldwide began to ruminate on what light actually is. Isaac Newton proposed that light consists of small particles, which he referred to as corpuscles. The English ophthalmologist Thomas Young refuted Newton's findings with his famous double-slit experiment. He went on to show that, depending on the experiment, light sometimes behaves as a wave and sometimes as a particle – an indication of just how complex a phenomenon light is.

It wasn't until the early 20th century that quantum theory restored some order to this chaos. Quantum electrodynamics ultimately showed that light is neither a particle nor a wave. Light consists of energy quanta – what we now call photons. The mathematical framework of this theory provided humans with a new tool for honing their command of light and getting to grips with incredibly fast and tiny photons.

This development gave an unprecedented boost to our ability to control light, prompting a similar revolution to that of the age of optics. It marked the start of the age of photonics, which continues to this day.

Since then, we have been using light to shape things to our will. One of the most evocative examples is the laser. We use laser beams to cut and weld a wide array of materials according to our specifications. We have also harnessed laser beams to construct objects layer by layer in 3D printing, tearing down the walls of traditional design engineering in the process. And we rely on lasers to measure out spaces with unprecedented accuracy – whether we are designing a new fitted kitchen or penetrating the cosmos. Light stores human knowledge on CDs and Blu-ray discs, making it accessible at the touch of a button. We send our data around the globe at the speed of light through fiber-optic cables, and we employ optical tweezers to shape materials right down to the atomic level by using light to exert force on the tiniest of objects.

Photonics has opened up access to realms that seemed entirely out of our reach just five years ago.

Take the next generation of computer chips, for example. The latest lithography systems produce light with an incredibly small wavelength by firing laser pulses at tin. They utilize this light to create circuits on an even tinier scale – just ten nanometers, or even smaller. That's approximately equivalent to the size of a hydrocarbon molecule. This dual control over light – generating extreme ultraviolet beams and using them to draw finer features on chips – is now enabling us to squeeze unprecedented levels of computing power into the smallest of spaces (see p. 22).

Ultrashort pulse lasers have given us control over light in the dimension of time, too, right down to the scale of a femtosecond, or one quadrillionth of a second. In fact, by creating highly stable laser systems, researchers have found roundabout ways of obtaining even shorter light pulses in the attosecond range. That's just one quintillionth of a second, a brevity that is almost beyond our comprehension, yet one that we have mastered with our technical and mathematical knowledge.

NEW MEANING FOR HUMANITY

Nowadays we even use light to measure gravitational waves – disturbances in the very fabric of spacetime itself. Gravitational wave detectors rely on a level of precision and control over light that is almost impossible to grasp. Huge and phenomenally accurate laser interferometers measure perturbations that are ten thousand times smaller than the nucleus of a hydrogen atom. In 2015, they enabled researchers to obtain the first direct measurements proving the existence of gravitational waves. The mastery of light lies at the very heart of these detectors. They effectively provide us with an entirely new sensory organ, a new eye that can look into the depths of the cosmos and its past, helping us to re-map the universe using gravitational waves and to decipher the mystery of black holes.

Photonics has opened up access to realms that seemed entirely out of our reach just five years ago.

Ultrashort pulse lasers have given us control over light in the dimension of time, right down to the scale of a femtosecond, or one quadrillionth of a second.

In the age of photonics, we use light to shape things to our will.

PHOTONICS

AHEAD OF THE CURVE

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It may sound like magic, but in reality it's simply the result of applying a more complex form of mathematics.

Today, developers in the field of laser material processing are working on an entirely new dimension of control. By viewing light strictly as a wave phenomenon and not as a beam, they are paving the way for an entirely new approach to laser material processing. Here, the laser focus is not viewed as rays converging at a specific point, but rather as intensity that can be shaped and distributed as required in each case. Scientists are busy developing optics that multiply the laser focus and position it differently within a space. This method could potentially achieve a thousandfold increase in the efficiency of surface processing! It may sound like magic, but it is ultimately just the result of switching from a simpler mathematical model to an incomparably more complex one. Once again, humans have succeeded in making light subservient to their needs by re-thinking the principles behind it.

In one form or another, all of the examples above involved TRUMPF.

PLENTY MORE TO COME

Yet all this is only the beginning. Thousands of visionary ideas from lots of bright minds are ready and waiting to be put into practice. One of these is the notion of eliminating the use of pesticides and herbicides in agriculture by using automatically controlled laser pulses to eradicate weeds and pests. The first trials are already underway – and the results so far are promising. Meanwhile, the Breakthrough Starshot project is aiming to put thousands of tiny light sail spacecraft into orbit. Geostationary lasers will accelerate them to a quarter of the speed of light using photon pressure and send them on their way to our closest stellar neighbor, Proxima Centauri, marking humanity's first strides into a stellar and planetary system outside of our own.

Eventually lasers are also likely to be used to transmit energy from highly efficient solar collectors in orbit to collectors on Earth, providing a clean source of energy. Meanwhile, laser-assisted methods of detecting cancer at a very early stage might eventually eliminate this disease for good, a goal that is already being pursued by researchers in Munich. Finally, the race is on to find faster methods of computing by using optical chips that transmit signals using light waves, or by switching to quantum computers that use laser light to manipulate quantum states. What all these visions have in common is that they are based firmly on the concept of controlling and manipulating light.

Mastering the use of light has become a key prerequisite for almost any advanced technology. Control light and you control the future. The time has come to poke another branch into the embers!

Laser-assisted methods of detecting cancer at a very early stage could eventually eliminate this disease for good.

Mastering the use of light has become a key prerequisite for almost any advanced technology.

PHOTONICS

Objects
do not have
any color
of
their own.
What we see
is
reflected
light.

THE VISIBLE SPECTRUM

RANGE OF WAVELENGTHS

approx.

380 *to* **420** *nm*

FREQUENCY RANGE

approx.

789.5 *to* **714.5** *THz*

VIOLET

RANGE OF WAVELENGTHS

approx.

420 *to* **490** *nm*

FREQUENCY RANGE

approx.

714.5 *to* **612.5** *THz*

BLUE

RANGE OF WAVELENGTHS

approx.

490 *to* **575** *nm*

FREQUENCY RANGE

approx.

612.5 *to* **522.5** *THz*

GREEN

AHEAD OF THE CURVE

RANGE OF WAVELENGTHS

approx.

575 *bis* **585** *nm*

FREQUENCY RANGE

approx.

522.5 *to* **513.5** *THz*

YELLOW

AHEAD OF THE CURVE

RANGE OF WAVELENGTHS

approx.

585 *to* **650** *nm*

2

0

FREQUENCY RANGE

approx.

513.5 *to* **462.5** *THz*

ORANGE

AHEAD OF THE CURVE

PHOTONICS

RANGE OF WAVELENGTHS

approx.

650 *to* **750** *nm*

2

1

FREQUENCY RANGE

approx.

462.5 *to* **400.5** *THz*

RED

AHEAD OF THE CURVE

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EXTREME ULTRAVIOLET LIGHT

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EXTREME ULTRAVIOLET LIGHT

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WITHOUT LASERS, ALL TODAY'S MEGATRENDS WOULD GRIND TO A HALT.

From smart connected factories to smart cities and homes, and from self-driving cars to intelligent wrist-worn devices, the way we live our lives is set to get even more complex and sophisticated in the future. To keep everything running smoothly, we will need ever smaller microchips that can process more information in even less time. Yet conventional chip development has reached its technical limits. New methods are needed to shrink chips further and make them powerful enough to implement our society's digital visions of the future. That's why TRUMPF is working with ASML – the world's leading provider of lithography systems – to develop a highly complex laser system for the semiconductor industry.

RAY OF HOPE FOR THE DIGITAL ERA

Ten billion is a big number, and it seems even bigger when you put it in context: ten billion transistors on a single computer chip. Back in the early 1960s, microchips only had space for a few dozen transistors, yet just ten years later this figure had already climbed into the thousands. By 2011, the number of transistors per chip had rocketed to almost three billion – and now we're at ten billion and counting. Yet we still need many more – twice as many in fact - and within two years at the latest.

That's because the future is all about connectivity. Autonomous electric vehicles communicating with cities' parking and energy management systems and processing huge amounts of data from their surroundings in just a fraction of a second; smart glasses offering up real-time information on the person sitting across from us on the train; intelligent machines talking to each other to confirm how to divide up work on a part; and factory floor robots equipped with innovative camera systems that help them see toppling containers and avoid collisions.

These may seem like the stuff of tomorrow's world, but they're not as far off as you might think – and they'll need plenty of computing power. That means the microchips at the heart of our digital world need to get even more powerful. They need to handle even more data in less time while offering ever more functionality and consuming less and less energy. And we can only achieve that by making their circuits even smaller. With this in mind, people often quote the words of Gordon Moore, the co-founder of Intel, one of the world's leading manufacturers of semiconductor chips.

Moore predicted back in 1965 that the number of transistors in an integrated circuit would double every 12 to 18 months. Ever since then, Moore's law has essentially shaped the industry's evolution. Taking Moore's law as a roadmap, companies have battled to populate every square millimeter of a chip ever more densely, with billions of dollars at stake. But to pack more and more transistors on the semiconductors inside chipsets, we quite simply need to harness ever-shorter wavelengths of light.

The future is all about connectivity – and that's why miniaturization must continue!

We need more light to pack more transistors into chipsets.

LIKE PATTERNS ON A SHEET OF PAPER

Every chip starts out in a lithography system. It projects the image of a photomask onto a silicon wafer and exposes the layer of photoresist on the wafer to light. Photolithography follows the fundamental principle of Abbe's diffraction limit, which defines the minimum distance that must lie between two structures in order to identify them as separate structures. The upshot of this diffraction limit is that a light source cannot image features smaller than its wavelength. In simple terms, it's a bit like trying to draw patterns on a sheet of paper with a soft pencil: The lines can only be as thin as the tip of the pencil itself.

Nevertheless, engineers have come up with a clever ruse to overcome this physical limitation. Sticking with the example of a pencil, their method lies in replacing the soft pencil with an extremely hard one, enabling them to draw thinner "lines" to create space for more circuits on a wafer. A wafer is a silicon disk with a diameter of 300 millimeters that holds hundreds of microchips, in some cases as many as a thousand. Conventional lithography systems operate at a wavelength of 193 nanometers – equivalent to 193 millionths of a millimeter. By way of comparison, a single human hair is around 30,000 nanometers, or 0.03 millimeters, wide. Using the "hard pencil" can make features even smaller, shrinking them by a factor of ten to a size of around 20 nanometers. That already goes beyond Abbe's diffraction limit, yet the march of miniaturization continues. It has to continue, but we've reached the limits of what is technically feasible, and conventional wafer fabrication methods have run out of steam. So does Moore's law still have a future?

What now? Scientists and researchers have essentially known the answer to that question for the past 20 years. To continue on the same trajectory, we need light with an incredibly small wavelength – 13.5 nanometers to be precise. On that scale, we could reduce feature size to less than ten nanometers, creating enough space to fit over ten billion transistors on a single chip. That's plenty of computing power to realize our digital ambitions – and the key to achieving it is a specially designed laser from TRUMPF.

FROM A RESEARCH PROJECT TO A VIABLE MANUFACTURING METHOD

It may seem like a simple number, but obtaining light with a wavelength of 13.5 nanometers is a highly complex business. At 13.5 nanometers we find ourselves firmly in the extreme ultraviolet (EUV) spectrum of light, close to the atomic level. That presents us with some unexpected challenges. To equip lithography systems with EUV light, we need to push the limits of what is technically feasible in multiple areas of technology. Even the smallest faults, deviations or impurities can have a major impact on process performance. In fact, the problems facing EUV lithography developers are so varied and so new that they cannot be solved by a single company working alone without partners. Mastering this highly complex technology and bringing the process to fruition requires an entire network of researchers and developers with different specialized skills.

Conventional lithography systems operate at a wavelength of 193 millionths of a millimeter. Now we can make features even smaller – by a factor of ten.

Ten billion transistors on a single microchip: plenty of computing power to realize our digital ambitions – at least for now!

Smart cars, cities and machines: The future is all about connectivity and it will need computing power.

At the heart of this network are three companies: TRUMPF, ASML – the world's leading manufacturer of lithography systems – and optics specialist ZEISS. These three partners have spent many years working closely together to make EUV technology industry-ready. What started out as a simple research project has grown into something much bigger: TRUMPF has now established a separate business unit in Ditzingen with over 500 employees specifically dedicated to developing and producing the EUV laser. EUV lithography is here to stay – and it is now regarded as the future of chip fabrication on an industrial scale.

FIRST EUV-EXPOSED CHIPS COME OFF THE PRODUCTION LINE

The key to the technology's breakthrough has always been its productivity. Throughput of 125 wafers per hour is regarded as the magic break-even point for the chip industry. This was achieved in late 2017 thanks to a newly designed component from TRUMPF that keeps the performance of the overall system stable.

So everything is now on course for the digital future. Over 30 EUV systems are already in use at chip fabs around the world, and more orders are in the pipeline. We have clearly reached the point of no return, with chipmakers moving en masse to EUV lithography. In other words, most of the smartphones that come to market in 2019 will be equipped with EUV-exposed chips. However simplistic it sounds, the fact of the matter is that, without TRUMPF, Moore's law would have come to an end.

125 exposed wafers per hour. That's the magic break-even point. This target was achieved in late 2017 – thanks to TRUMPF.

TECHNOLOGY

Focus on technology

Flashes of light in a vacuum

One of the biggest challenges of EUV lithography is how to generate light with the extremely short wavelength of 13.5 nanometers. To do this, the EUV light source has to deliver an output of a few hundred watts. That may not sound like much, but it turns out that EUV is an extremely difficult form of light to produce. The challenges involved can be hard to fathom, but one striking fact is that generating EUV light without a laser would require particle accelerators the size of soccer pitches!

Which brings us back to the laser; the idea behind the laser-based fabrication process can be expressed fairly simply. Basically, a tin generator fires 50,000 droplets of tin a second (!) through a vacuum chamber and a laser pulse strikes the droplets as they shoot past. This is a kind of high-tech version of clay target shooting – and it generates a plasma in the vacuum that emits EUV light at the desired wavelength of 13.5 nanometers. A collector gathers up the EUV light and delivers it to the lithography system to expose the wafer.

To produce the laser pulses, TRUMPF developed a one-of-a-kind beam source based on its CO_2 laser technology – the TRUMPF laser amplifier. In five amplifier stages, this device boosts a weak laser pulse more than 10,000 times, outputting more than 30 kilowatts of mean pulse power. Pulse peak power can be as high as several megawatts.

To achieve perfect results, the laser pulse must strike the tin droplet across as broad an area as possible. The tin droplet is smaller than the laser's focus spot, however, so the laser cannot transfer its full 30 kilowatts of power to the droplet when it hits it. The laser amplifier has a clever solution to this problem. It emits a pre pulse and a main pulse, one immediately after the other.

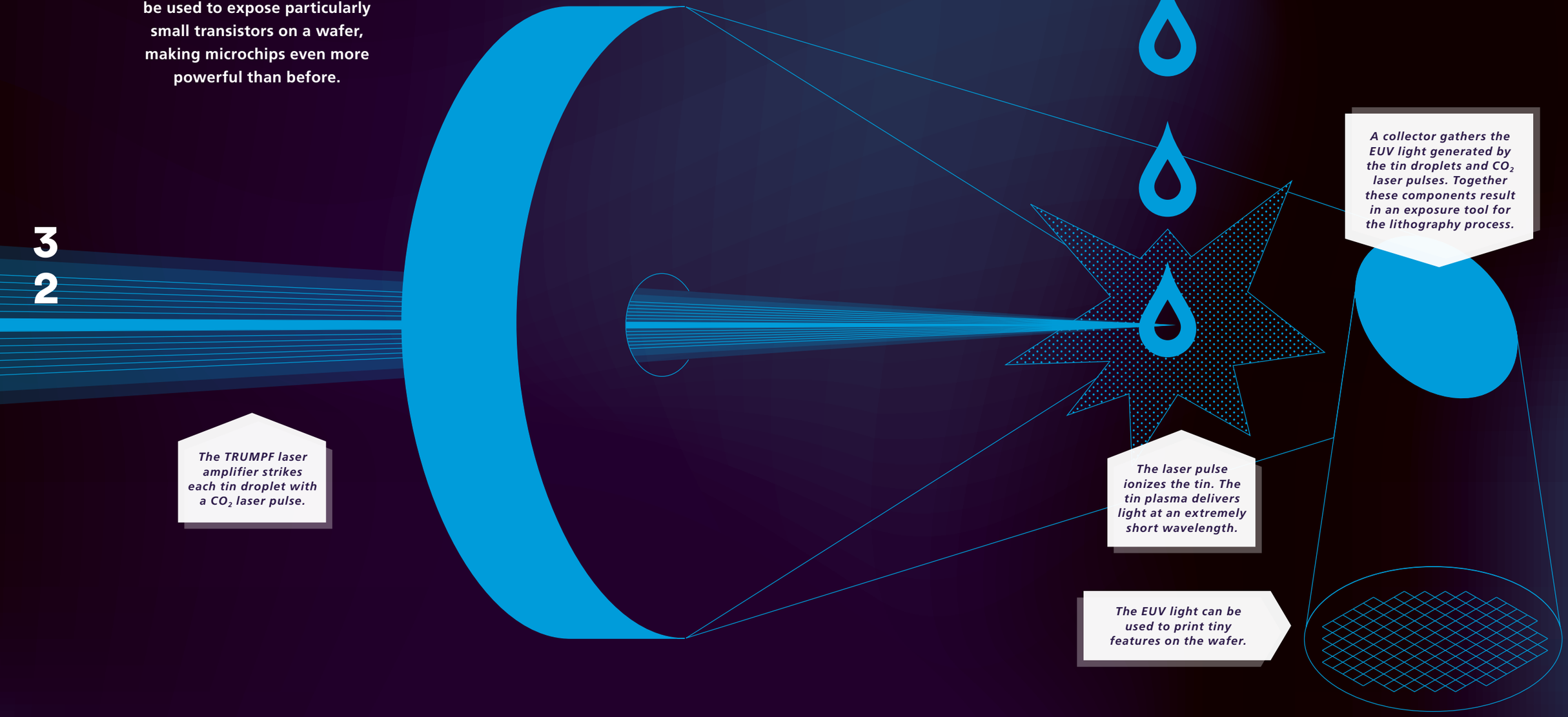
The pre pulse strikes the tin droplet with low laser power; the tin atoms ionize and the resulting plasma expands. The main pulse, following close behind, strikes the plasma cloud with the whole pulse power. Bull's eye!

EXTREME ULTRAVIOLET LIGHT

EUV lithography

How it works

The EUV laser shoots at tin droplets. This creates plasma which can be used to expose particularly small transistors on a wafer, making microchips even more powerful than before.



EXTREME ULTRAVIOLET LIGHT

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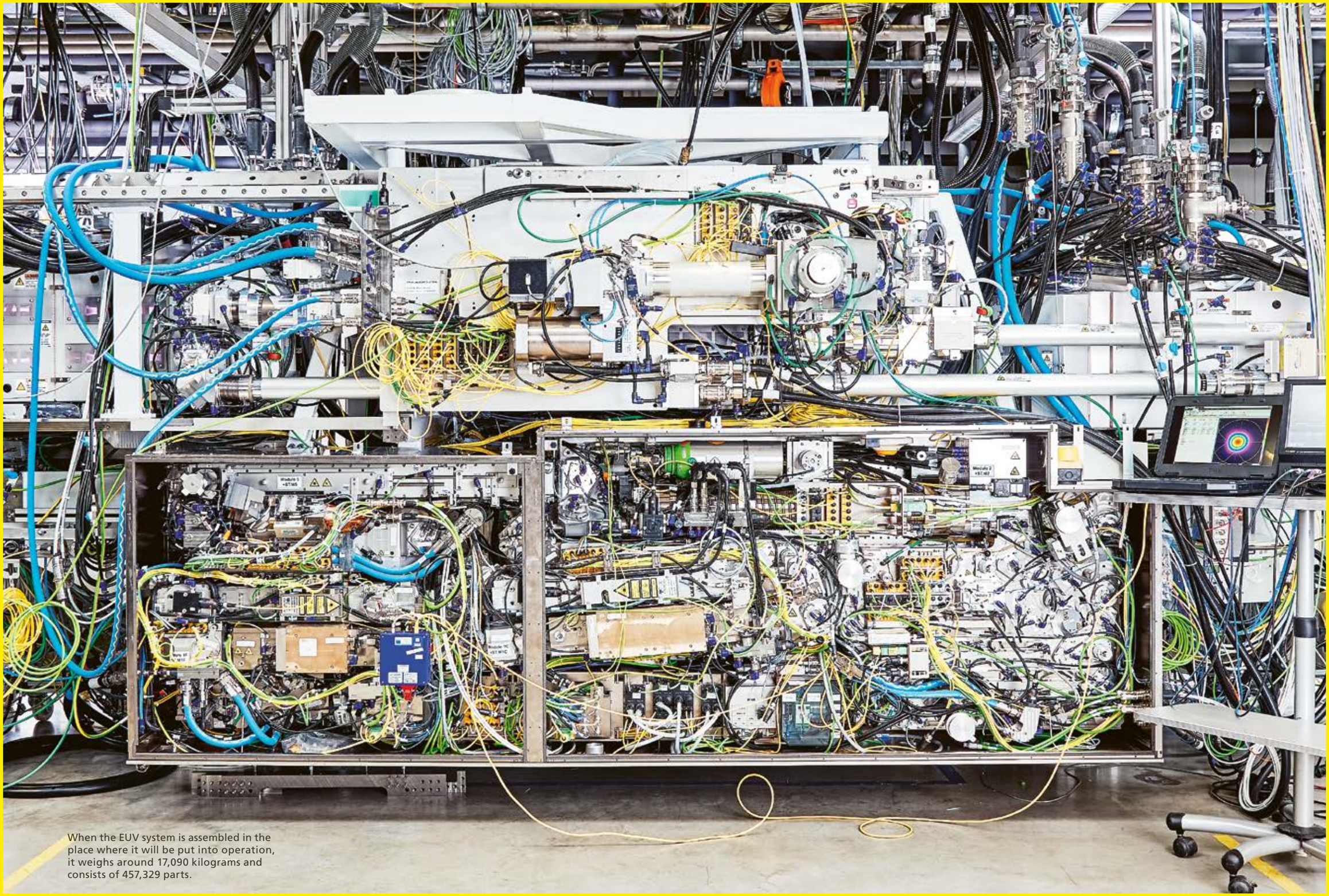

When the EUV system is assembled in the place where it will be put into operation, it weighs around 17,090 kilograms and consists of 457,329 parts.

EXTREME ULTRAVIOLET LIGHT

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Technicians carefully calibrate the mirrors to ensure that they guide the laser beams along the correct path.

EXTREME ULTRAVIOLET LIGHT

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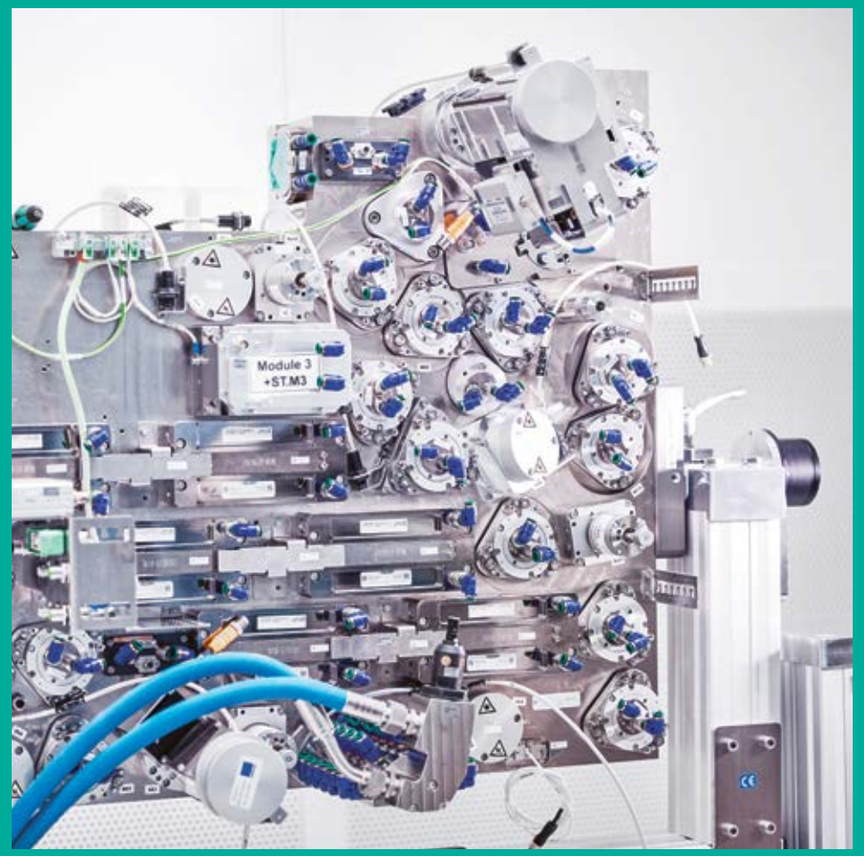
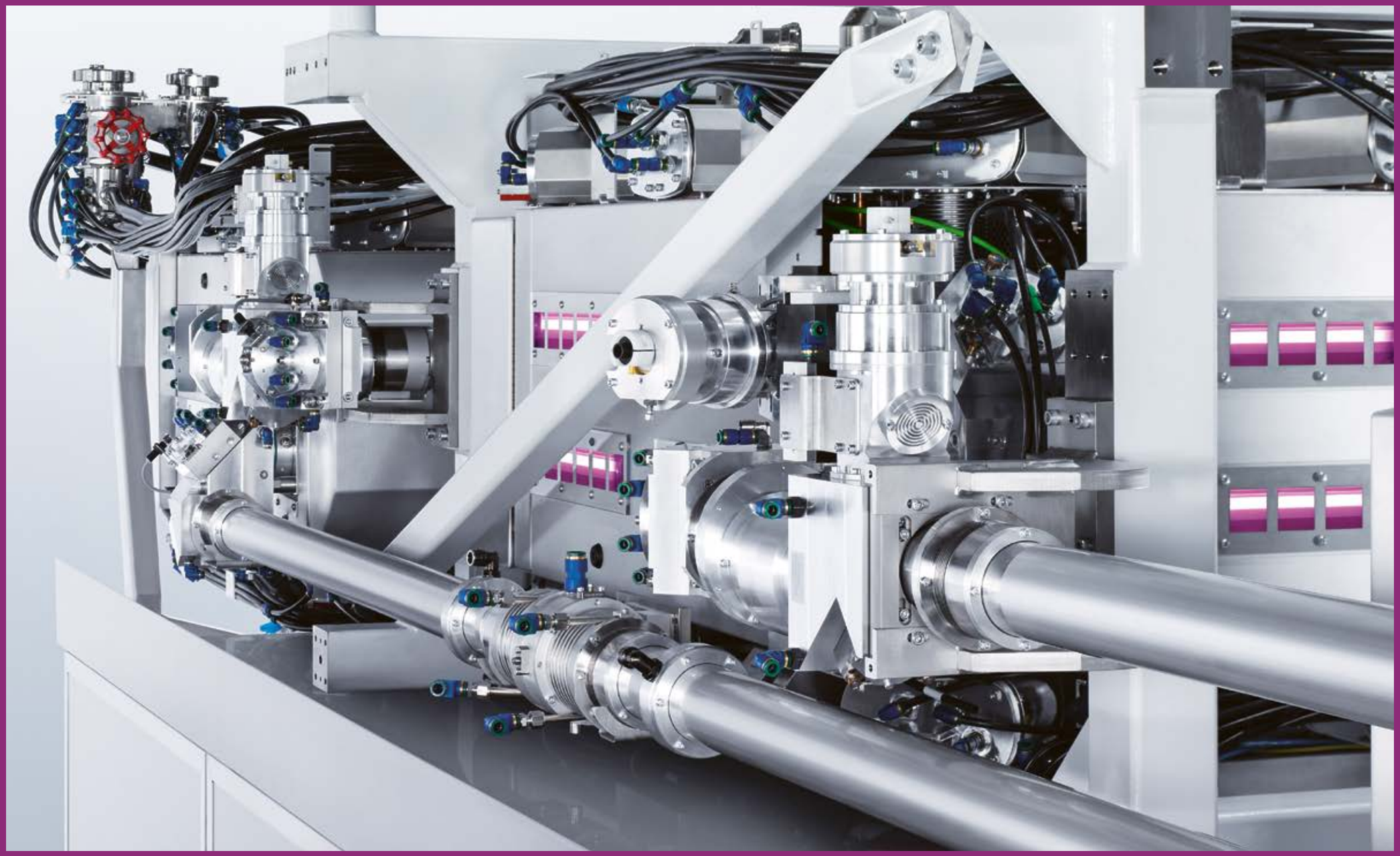
A mechatronics engineer
installs a mirror mounting.



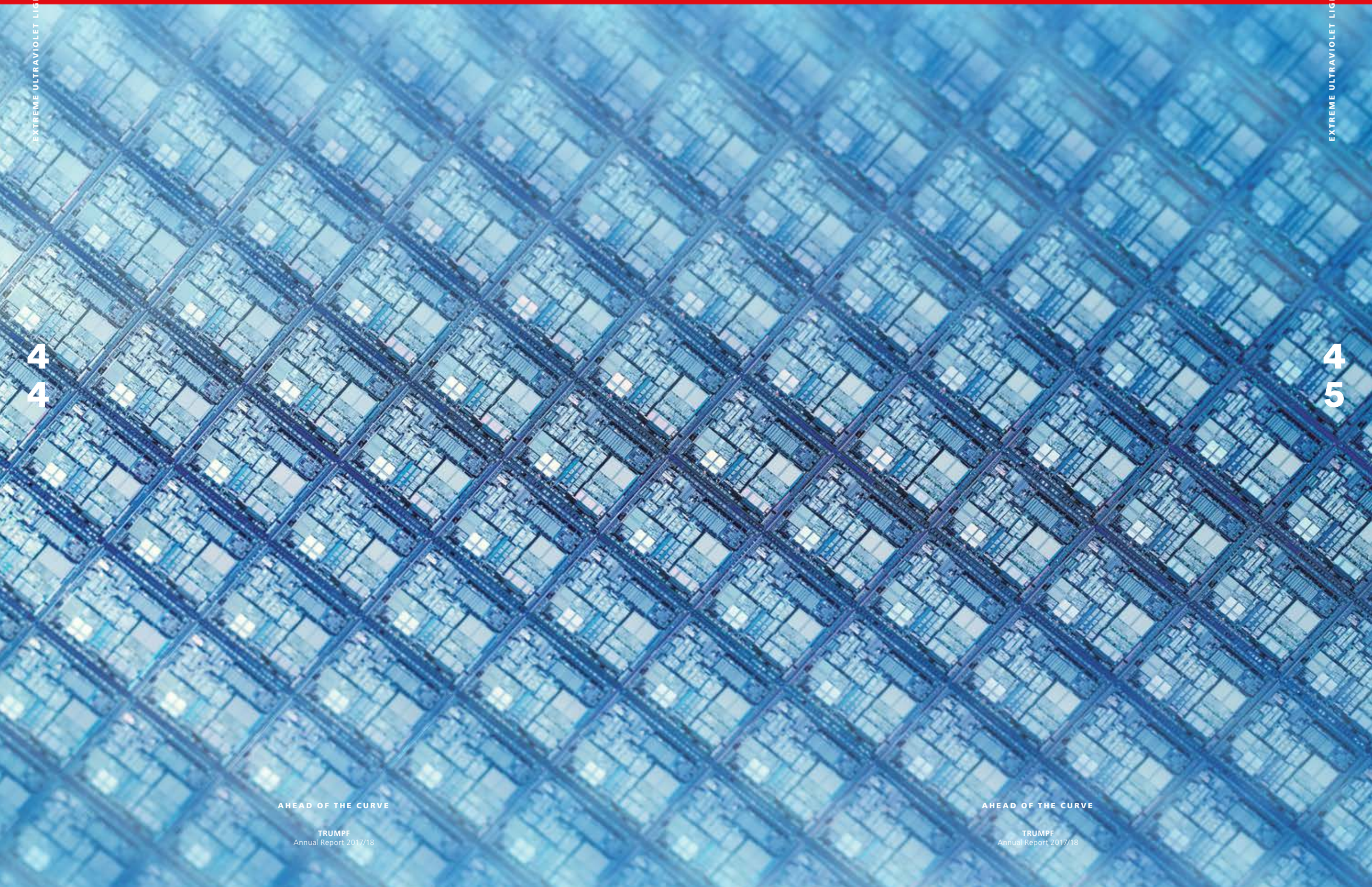
Light from CO_2 lasers requires a vacuum. Leak tests are performed to ensure that no air from the outside penetrates the system.

Most of the system is disassembled and cleaned in order to remove any microscopically small particles before being dispatched. Such contamination could prevent the laser from operating correctly at the customer's site.

The excited mixture of gases in the CO_2 laser glows red – this is where EUV light is produced.



Exposed transistors: EUV light can be used to create even tinier features on wafers. That makes the microchips far more powerful.



EXTREME ULTRAVIOLET LIGHT

ADDITIVE MANU FACTURING

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PRODUCTION LINES WITHOUT 3D PRINTERS WILL BE AN ANACHRONISM IN THE CONNECTED FACTORIES OF THE FUTURE.

The ability to produce parts of any shape and size at the touch of a button is the stuff engineers' dreams are made of. Once, twice, or in the thousands; from prototypes and one-off products to small batches and large-scale production runs. In fact, the manufacturing industry as a whole is desperate to find a way of offering flexible, on-demand production of metal parts. Right now, it is on the verge of transitioning from the mass production of mass-produced parts to the mass production of individualized parts – but conventional manufacturing methods are reaching their economic and technological limits. Over the past 15 years, TRUMPF has developed two laser processes to an industrial scale, both of which can be used to "print" entire components, seemingly from nothing.

SHAPED FROM POWDER – WITH THE POWER OF THE LASER

Loaded with metal powder, the machine waits for the command to produce. The laser inside is ready to zip across the work surface at intervals of just a few fractions of a second, creating solid parts from the fine-grained metal powder. The machine and its laser can build any part on command, whether it's the size of a needle, a fist or a crate. They can handle any shape or contour, from injection nozzles and turbine blades to dental crowns, tools and medical implants. And – perhaps most remarkably of all – they can produce just about any geometry, offering a level of design freedom that is only limited by the developers' and engineers' imaginations.

The machine is a 3D printer for metal parts, though the term "3D printer" is really just a colloquial term for a technology that experts refer to as generative or additive manufacturing, or AM. Few technologies have enjoyed as much hype and praise for their revolutionary nature as this one, and the principle behind it is certainly a tantalizing prospect: 3D printers can build up any object layer by layer using data input directly from a CAD program. In industrial settings, this is generally carried out using metal powder and with the power of the laser.

THE LASER FUSES METAL POWDER FROM THE NOZZLE AND IN THE POWDER BED

Essentially, AM uses a laser to fuse metal powder particles into layers of material in a powder bed. This process is known as laser metal fusion. It is particularly suitable for geometrically complex parts with internal channels and cavities – the kind of parts that conventional methods such as turning and grinding struggle to produce efficiently, or are unable to produce at all. These include nozzles with optimized flow geometry and spinal implants with a fine lattice structure.

3D printing is particularly suitable for complex parts with internal channels and cavities – the kind of parts that turning and grinding struggle to produce.

But not every part is chosen for its complex geometries. In many cases, additive manufacturing provides an economical means of adding material to existing parts, for example adding a mounting surface to a pipe. The conventional way of creating the required geometry in this case is to produce a pipe with a larger diameter than necessary and then ablate everything apart from the mounting surface itself – a tremendous waste in just about every respect. But a technique known as laser metal deposition or laser cladding makes it possible to turn the whole process on its head by adding just the necessary material rather than ablating all the unnecessary material. To do this, the laser generates a weld pool on the surface of the pipe and fuses the powder into the desired shape as it is added to the pool.

The current method is to produce a pipe with a larger diameter than necessary and ablate everything you don't need, which is a tremendous waste.

Laser metal fusion and laser metal deposition are the two laser-based methods that are making additive manufacturing more attractive and relevant for industrial use – not before time, because this boost in flexibility is exactly what industry is looking for. The unstoppable trend towards high mix, small batch manufacturing is

proving to be a real headache for production planners, with the cost of tool manufacturing and set-up times spiraling to astronomical levels. Making any kind of profit at all from the mass production of individualized parts and one-off products is virtually impossible with mechanical methods – and lightweight design is making the situation even harder. Automakers are optimizing every inch of their vehicles to cut down on weight, and the aviation industry is busy doing the same. Laser metal fusion allows parts to be designed on the basis of bionic principles, paving the way for the ultimate in lightweight construction. Weight savings of over 50 percent are perfectly realistic – and the most remarkable thing of all is that the mechanical properties of the parts actually improve when engineers develop them on the basis of 3D design principles.

Laser metal fusion allows parts to be designed on the basis of bionic principles. That enables the ultimate in lightweight construction with weight savings of up to 50 percent or more.

PIONEERING WORK, ONE WRONG STEP, AND A RETURN TO THE MARKET

Back in the mid-1990s, TRUMPF and Fraunhofer ILT joined forces to work on the development of laser metal fusion. This collaboration gave rise to TRUMPF's first powder bed-based machine, the TrumaForm. The machine was launched in 2003, well ahead of the curve. Back then, the market was still dominated by research, development and a few niche applications – but it certainly wasn't mature enough to embrace industrial-scale 3D printing. Three years after bringing the machine to market, TRUMPF put its plans for developing the powder bed process on ice.

Laser metal deposition has followed a very different path. TRUMPF has been working on this technology continuously for almost 15 years, steadily refining it and establishing a solid market presence. For a long time, this method was primarily used to coat parts, for example to protect them against wear or corrosion. The machines were also used to repair damaged metal components. Now, however, laser metal deposition has become so advanced that it can be used to generate entire parts in a similar way to laser metal fusion.

Sometimes markets grow exponentially – but other times things move in an unexpected direction. Looking back, TRUMPF's decision to shelve its work on powder bed additive manufacturing was the wrong one. Market demand for robust, industry-ready machines has rocketed in recent years, and laser metal fusion is once again back in business. TRUMPF responded to this development by rolling up its sleeves once again and analyzing the market. During the last fiscal year, TRUMPF reinstated additive manufacturing as one of its key areas of strategic action. Thanks to its previous pioneering work in this area, TRUMPF was able to quickly regain a technological edge. In 2015, it brought new machines to the market, this time under the name of TruPrint instead of TrumaForm. Some 200 people are now employed in this business division in Ditzingen,

Additive manufacturing is one of TRUMPF's key areas of strategic action. More than 200 employees are pursuing the goal of generating some half a billion euros in sales by 2030.

Digitalization is crying out for a tool that is fast, direct, flexible and physically unconstrained – the laser.

all of them committed to the ambitious but realistic goal of generating sales of some half a billion euros by 2030.

3D PRINTING – THE HOLY GRAIL?

So surely additive manufacturing will eventually supersede all the other manufacturing and production methods we use today? Well, not quite. Laser metal fusion and laser metal deposition are not disruptive technologies. It is far more likely that they will simply find their rightful place alongside well-established techniques such as turning, milling and pressing. For some parts, they may end up being used in combination with these techniques in a manufacturing chain, or perhaps even in an integrated machine. In a few years' time, the vast majority of modern factories will have a 3D printer at their disposal.

Anything else would be counter-intuitive in the light of digitalization and Industry 4.0. That's because digitalization is crying out for a tool that is fast, direct, flexible and physically unconstrained – and the laser fits that description perfectly. Lasers can only be controlled numerically; in fact you could almost say that data-based manufacturing is in their DNA. Additive manufacturing helps to maximize the potential, leaving nothing but a focused beam of light between data and form. When it comes to modern data-driven production, additive manufacturing is the perfect technology because it is the pure embodiment of data-based manufacturing.

Finally, back at the machine, the commands have been received and the laser has started work. With the machine in full swing, sparks fly and the first contours begin to emerge. A part takes shape where, previously, there was nothing but powder – and that's the stuff that engineers' dreams are made of.

Additive manufacturing is the pure embodiment of data-based manufacturing – and that makes it the perfect technology for modern production.

TECHNOLOGY

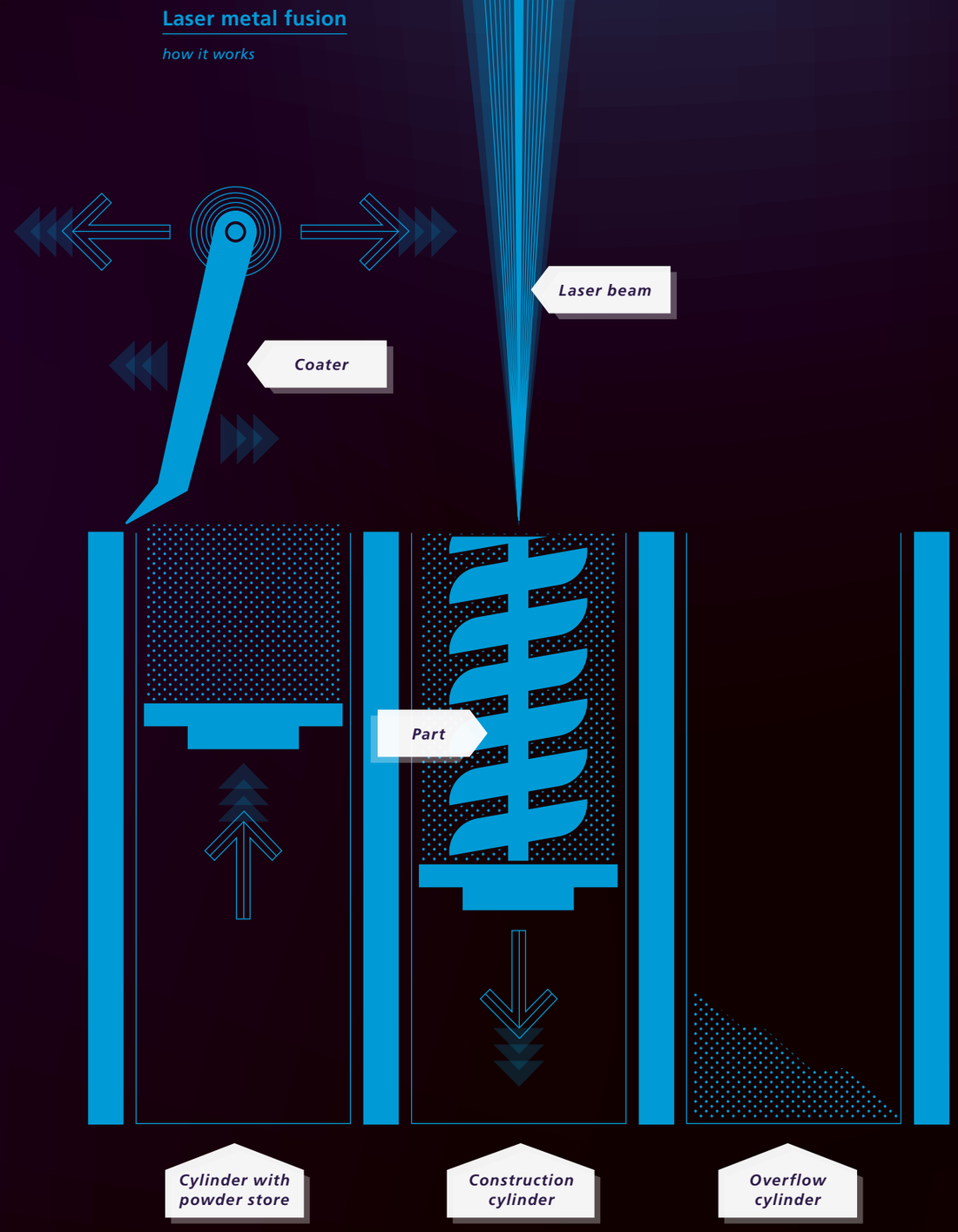
Focus on technology

Making parts from metal powder

Laser metal fusion builds up parts layer by layer in a powder bed. The process takes place in what is called a process chamber.

Laser metal fusion essentially works as follows: The supply, construction and overflow cylinders are situated alongside each other in the same axis. A device known as a coater applies powder from the storage cylinder to the construction cylinder. The laser then fuses the first layer of powder into the contours required for the part.

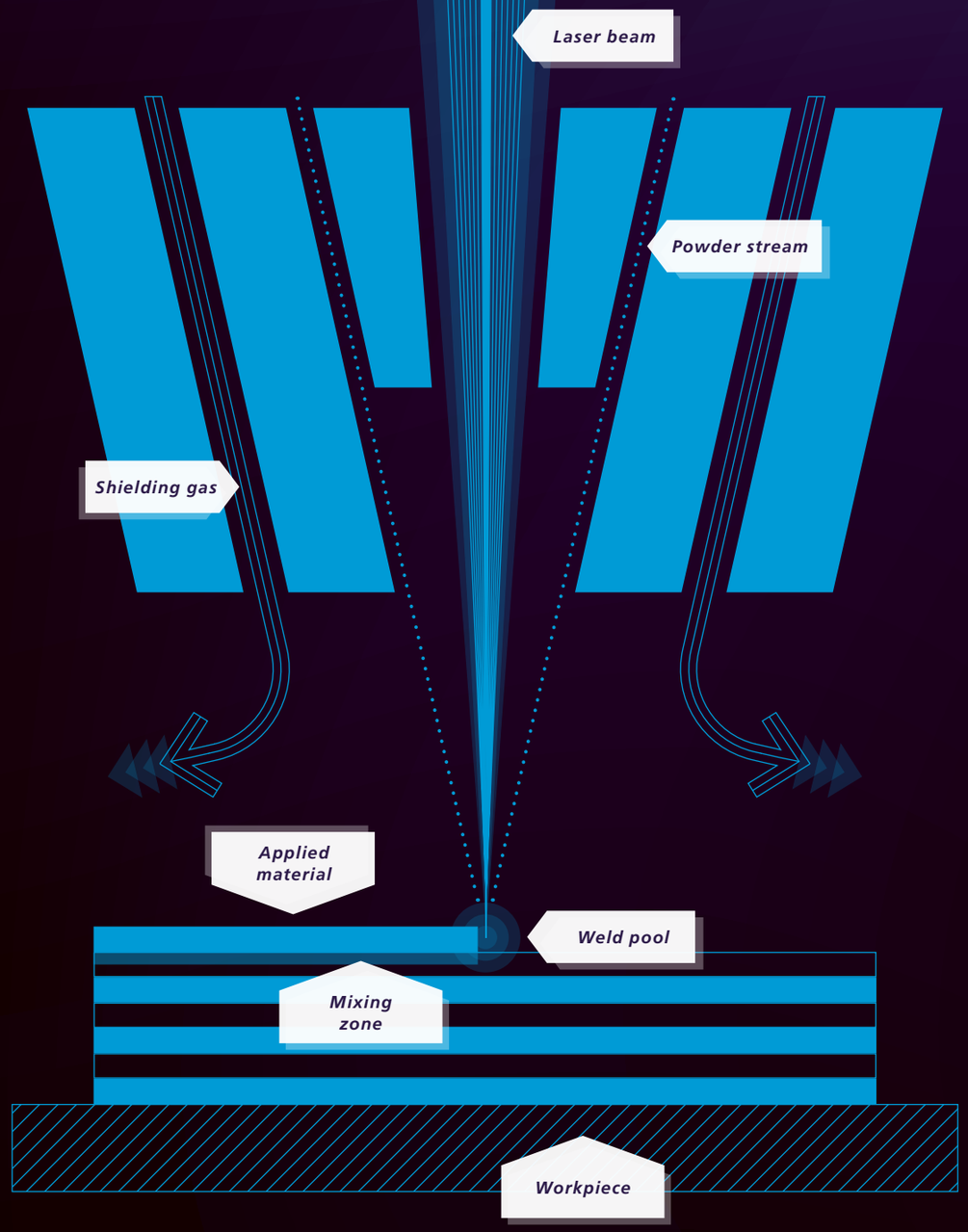
Next, the construction cylinder moves downward, depositing any excess powder in the overflow cylinder. This process is repeated until the part is complete. To boost productivity, some 3D printers can work with several lasers at the same time, a feature known as the multi-laser principle.



ADDITIVE MANUFACTURING

Laser metal deposition

how it works



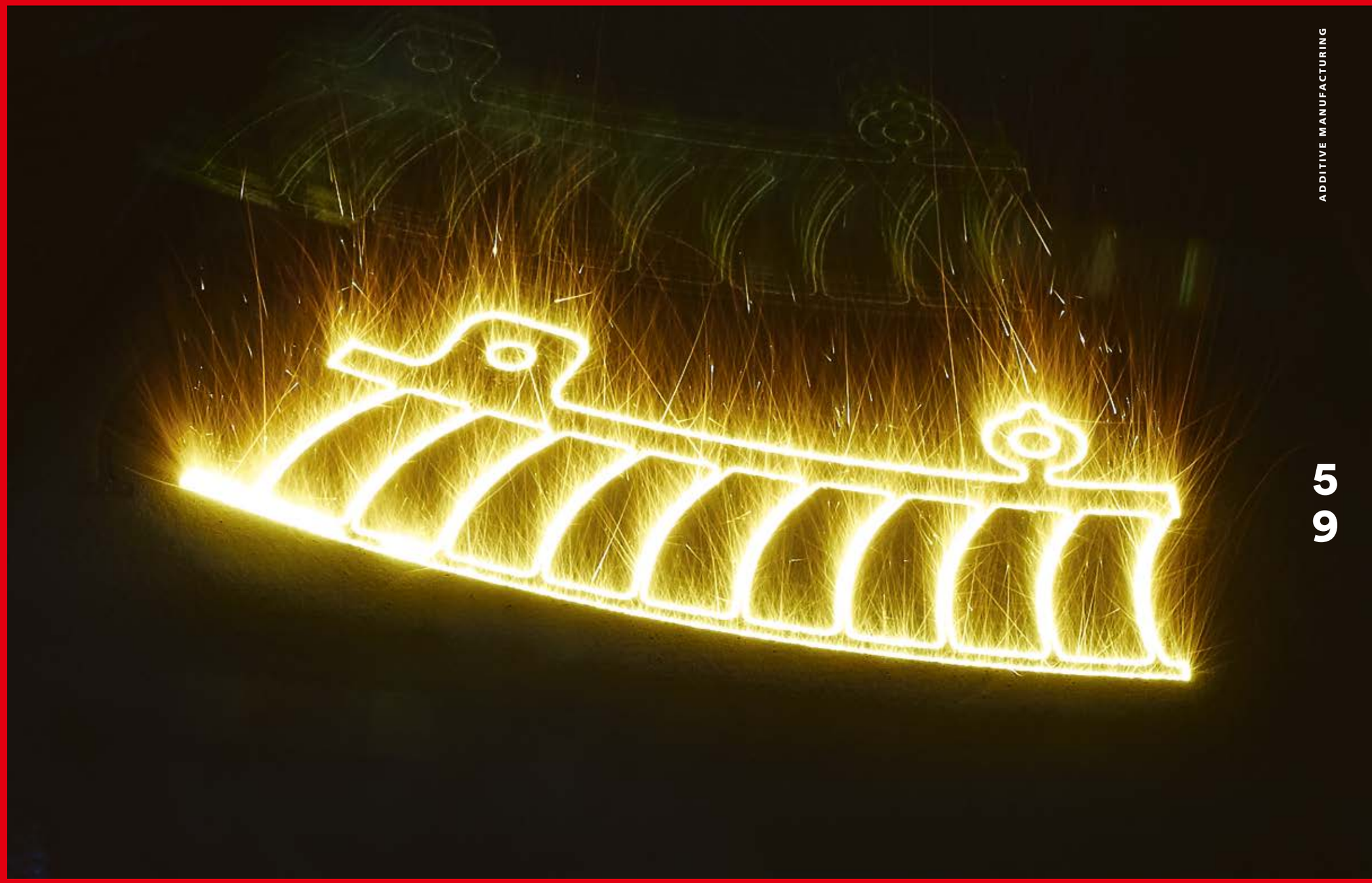
Focus on technology

Laser metal deposition as an additive manufacturing method

TRUMPF has also built up expertise in the second key area of additive manufacturing, generally referred to as laser metal deposition or laser cladding. Unlike laser metal fusion, this process is normally carried out in an open environment. The laser forms a weld pool on the surface of a substrate and fuses the powder – applied simultaneously through a nozzle – to create the desired shape. The laser beam is fired out of the middle of the nozzle, and the deposited material can grow in any spatial direction.

Build-up rates and process speeds are higher than those achieved in other additive manufacturing methods. The process may involve multiple active powder containers, enabling the development of alloys. The range of base alloys extends from nickel, cobalt and aluminum to copper and titanium. By combining different materials, it is also possible to create structures that resemble the composition of a sandwich.

Laser metal deposition is used in various industries including the aerospace, energy, petrochemical, automotive and medical device sectors.



In laser metal fusion, a laser transforms powder into a part by melting it – this long exposure shot makes the process visible.

ADDITIVE MANUFACTURING

AHEAD OF THE CURVE

TRUMPF
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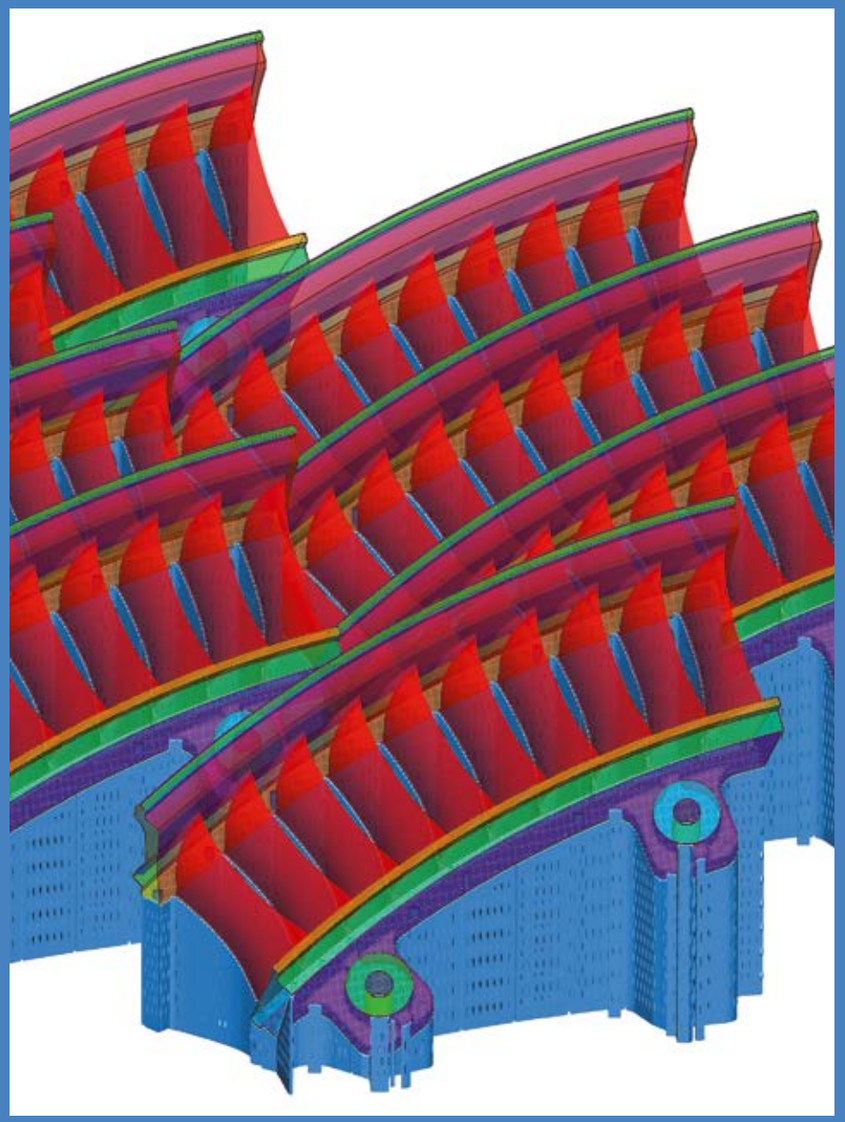

A software program prepares the data before the 3D printer starts work.

Removing the cylinder containing the part from the 3D printer. The part is now ready for further processing.

The construction cylinder is mounted in the unpacking station.

It takes just a few minutes to vacuum the excess powder off the part.

The excess powder is channeled from the unpacking station (left) to the sieving station. This unit cleans the excess powder so that it can be reused. It does this by removing the smoke residue and dirt particles picked up by the powder during the welding process.

ADDITIVE MANUFACTURING

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Done and dusted!
A finished part from
the 3D printer.

ADDITIVE MANUFACTURING

From turbochargers to braille door handles, laser metal deposition opens up a wealth of new manufacturing opportunities.

AHEAD OF THE CURVE

TRUMPF
Annual Report 2017/18

Sustainable metalworking: Instead of producing parts such as this spiral shape by ablating material from a thick rod, laser metal deposition allows users to simply add whatever elements are actually required.

Setting up the machine before the job starts.

Job done: A TRUMPF laser applies a metal coating to a tool for a press used in the auto industry.

ADDITIVE MANUFACTURING

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THE COMPANY

AHEAD OF THE CURVE

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Group Management

DR. RER. POL. LARS GRÜNERT
DR.-ING. CHRISTIAN SCHMITZ
DR.-ING. E.H. PETER LEIBINGER
DR. PHIL. NICOLA LEIBINGER-KAMMÜLLER
DR.-ING. MATHIAS KAMMÜLLER
DR.-ING. HEINZ-JÜRGEN PROKOP

THE COMPANY

Message from the Group Management Board

Ladies and gentlemen,

In fiscal 2017/18 – which ended at the TRUMPF Group on June 30, 2018 – the company increased its sales by a considerable 14.6 percent year over year to about 3.6 billion euros (previous year: 3.1 billion).

Orders received rose to 3.8 billion euros, up 12.5 percent compared with fiscal 2016/17 (3.4 billion).

TRUMPF thus posted the highest-ever figures for orders received and sales in its corporate history. Both the Machine Tools and Laser Technology divisions contributed to this success, as did the company's new business fields, such as EUV technology.

Our profit before taxes increased by 52.3 percent to 514 million euros (previous year: 337 million). The TRUMPF Group's return on sales was 14.4 percent (previous year: 10.8 percent).

Germany, the company's home country, was TRUMPF's strongest individual market at 719 million euros and we posted growth of 15.6 percent there (previous year: 622 million).

With sales of 457 million euros, China was our second-biggest market (previous year: 404 million), while the U.S. was the next largest with 444 million euros (previous year: 421 million).

The majority of other European markets also performed well, with Italy notable in achieving sales growth of 31.8 percent to reach a total of 173 million euros. Another growth driver was EUV lithography sales to our customer ASML in the Netherlands.

In Western Europe excluding Germany, sales rose by 22.2 percent to 950 million euros (previous year: 777 million). After a slight decline in the previous year, sales in Eastern Europe rose by a strong 29.5 percent to 357 million euros (previous year: 276 million).

This positive trend was also reflected in personnel growth. As of the reporting date of June 30, TRUMPF had 13,420 employees worldwide, around 1,500 more than in the previous year.

Half of our workforce (6,778) is employed in Germany. As of the reporting date, we had 3,875 employees at our headquarters in Ditzingen (including Gerlingen), up 438 over the previous year.

In the year under review, 450 young people completed a training course or co-op work-study program at TRUMPF. The Group's training rate stood at 3.5 percent (previous year: 3.9 percent).

TRUMPF used the fiscal year to press ahead with construction work to expand its sites, investing a total of 93 million euros. In addition to completing production buildings and sales offices at our Ditzingen headquarters, we invested in building projects at our German sites in Hettingen, Freiburg, Teningen and Schramberg. In total TRUMPF invested 216 million euros in tangible and intabigle assets during fiscal 2017/18.

Germany accounted for 63 percent of our global capital expenditure, with the remainder shared between other European locations, the United States and Asia-Pacific and China.

TRUMPF also took a step forward in terms of technology: we systematically pursued our strategy of enhancing our technological expertise with three major acquisitions.

In January 2018, we acquired AMPHOS, a manufacturer of ultrashort pulsed lasers. In October 2017, we strengthened our supply chain for EUV technology by acquiring a majority interest in U.S.-based Access Laser. At the very start of fiscal 2017/18, we acquired a majority shareholding in BeSpoon, a French company specializing in position tracking. TRUMPF also stepped up its venture capital activities.

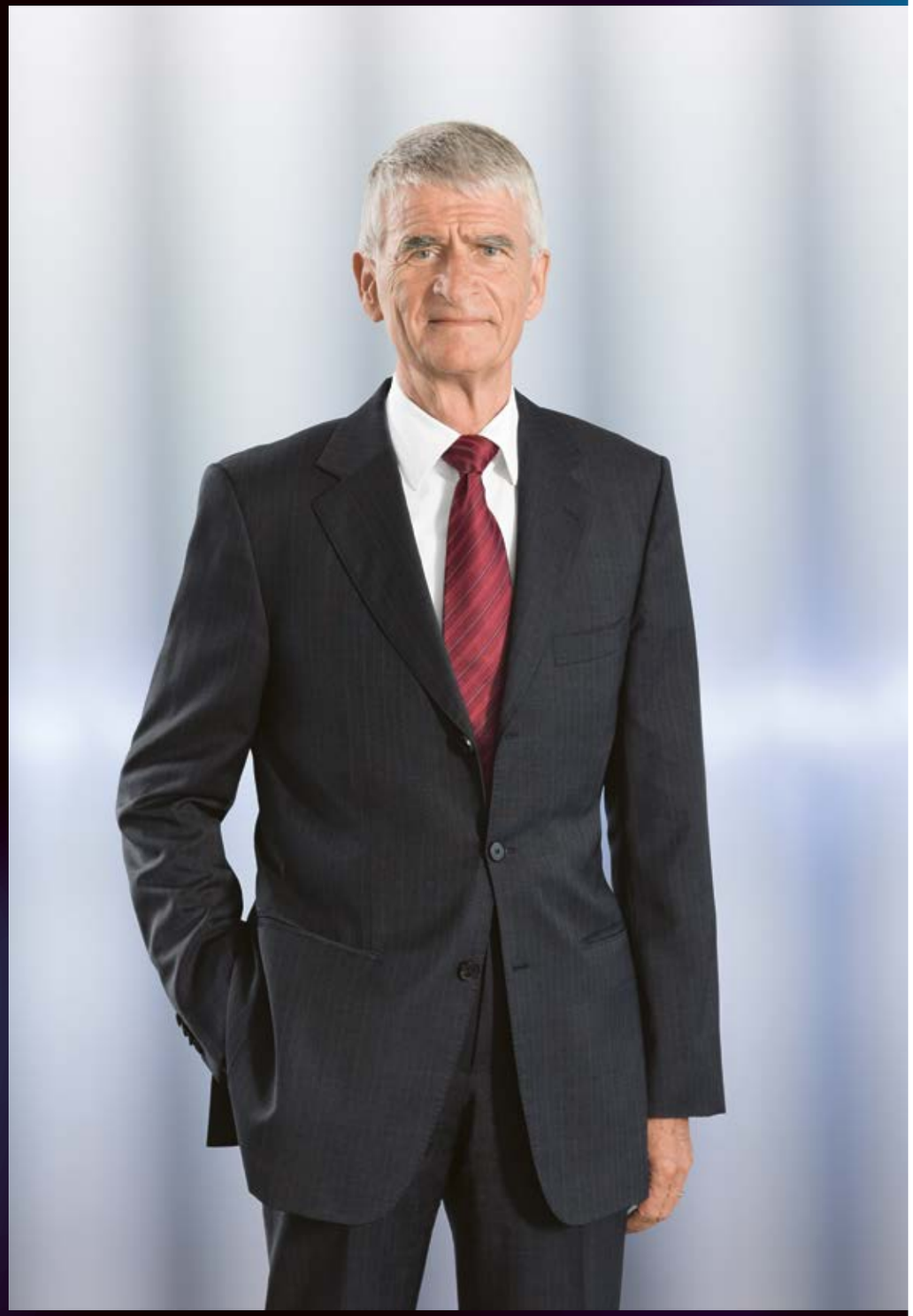
We continued to be proactive in pursuing the digital transformation of our company. We are already marketing our AXOOM business platform and have added several new modules to our TruConnect range of networking solutions.

In fiscal 2017/18, we once again increased our R&D expenditure, which rose 5.9 percent to 337 million euros (previous year: 318 million). At 9.5 percent, the ratio of R&D expenditure to sales was again very high (previous year: 10.2 percent).

I sincerely thank our customers, business partners and employees for their commitment to our company and for the trust they place in us. They were one reason that TRUMPF achieved remarkable business success in fiscal 2017/18 despite the increasingly volatile geopolitical environment.

Ditzingen, October 2018

DR. PHIL. NICOLA LEIBINGER-KAMMÜLLER
Chief Executive Officer (CEO)



Supervisory Board Report

Ladies and gentlemen,

At the close of fiscal year 2017/18, TRUMPF can once again report record results for orders received, sales, and earnings. The company is in excellent shape. Our strategy of growth through innovation, targeted acquisitions and wise investments has been successful, and will be continued.

The Supervisory Board exercised the responsibilities incumbent on it with due skill, care and diligence, in accordance with statutory regulations and the group's articles of association. Collaboration between the Supervisory Board and Group Management Board was close, effective and efficient. The President and Chairwoman of the Managing Board informed the Chairman of the Supervisory Board regularly and promptly of all events of significance. The Supervisory Board met three times during the period under review, during which its members discussed issues including the company's overall strategic development, the strategy of the Machine Tools division, quality standards, precautionary measures in the event of a no-deal Brexit, the EU's General Data Protection Regulation (GDPR), talent management, and compliance and auditing. Regular items on the agenda were business development, budget monitoring, investment and acquisition projects, and progress in key technologies of the future such as EUV lithography, additive manufacturing and digitalization.

The separate and consolidated annual financial statements and the group management report were reviewed by Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, Stuttgart, who issued an unqualified audit opinion. After completing their own audits of the annual financial statements, consolidated financial statements, and group management report, and accepting the independent auditor's findings, including the proposed appropriation of earnings, the Supervisory Board raised no objections to their publication.

The Supervisory Board wishes to thank the Group Management Board and all employees worldwide for their hard work and constructive contributions to the company's success. We also wish to thank the members of the Works Council for their good cooperation.

Ditzingen, October 2018

DR. JÜRGEN HAMBRECHT
Chairman of the Supervisory Board

Company Information

GROUP MANAGEMENT BOARD

Dr. phil. Nicola Leibinger-Kammüller
President and Chairwoman of the Group Management Board of TRUMPF GmbH + Co. KG
Chief Executive Officer
Responsible for the strategic development of the company, corporate communication, brand management, real estate management and sustainable business, legal affairs, M+A, and HR (Labour Director)

Dr.-Ing. E.h. Peter Leibinger
Vice Chairman of the Group Management Board of TRUMPF GmbH + Co. KG
Chief Technology Officer
Responsible for research and development, sales and service, and establishing and developing new business fields

Dr.-Ing. Mathias Kammüller
Member of the Group Management Board of TRUMPF GmbH + Co. KG
Chief Digital Officer
Responsible for digital transformation, TRUMPF digital solutions, business information services, production, and quality and process management

Dr. rer. pol. Lars Grünert
Member of the Group Management Board of TRUMPF GmbH + Co. KG
Chief Financial Officer
Responsible for finance, financial services, venture capital, purchasing and information security

Dr.-Ing. Heinz-Jürgen Prokop
Member of the Group Management Board of TRUMPF GmbH + Co. KG
Chief Executive Officer for Machine Tools
Regional responsibility for China

Dr.-Ing. Christian Schmitz
Member of the Group Management Board of TRUMPF GmbH + Co. KG
Chief Executive Officer for Laser Technology
Regional responsibility for North America

PARTNERS

Family Leibinger
95.0 percent

Berthold Leibinger Stiftung GmbH*
5.0 percent

SUPERVISORY BOARD

Dr. rer. nat. Jürgen Hambrecht
Neustadt a.d. Weinstraße
Chairman of the Supervisory Board of Berthold Leibinger GmbH, Chairman of the Supervisory Board of BASF SE

Renate Luksa**
Vaihingen/Enz
Vice Chairman of the Supervisory Board of Berthold Leibinger GmbH, Senior Chairman of the Works Council of TRUMPF Werkzeugmaschinen GmbH + Co. KG, Ditzingen

Werner Bruker**
Lauterbach
Chairman of the Works Council of TRUMPF Laser GmbH, Schramberg

Prof. Dr. rer. nat. Claudia Eckert
Garching
Director of the Fraunhofer Institute for Applied and Integrated Security (AISEC), Garching, Chair for IT Security, Technical University of Munich (TUM)

Dr.-Ing./U. Cal. Markus Flik
Stuttgart
Chief Executive Officer of CHIRON Group SE, Tuttlingen

Stefan Fuchs
Hirschberg
Chairman of the Board of Management of Fuchs Petrolub SE, Mannheim

Prof. Dipl.-Ing./M. Arch. Regine Leibinger
Berlin
Architect, Barkow Leibinger, Berlin

Monika Lersmacher**
Kornwestheim
Union Secretary of the IG Metall trade union, Stuttgart

Martin Röll**
Tübingen
Second Authorized Representative of IG Metall Stuttgart, Stuttgart

Jürgen Schäfer**
Weinstadt
Director of Real Estate Management and Sustainable Business Corporate Department, TRUMPF Immobilien GmbH + Co. KG, Ditzingen

Joachim E. Schielke
Backnang
Former Chairman of the Board of Management of Baden-Württembergische Bank, Stuttgart, former Member of the Board of Management of Landesbank Baden-Württemberg, Stuttgart

Harald Weihbrecht-Betz**
Group Leader of Production Unit Machine Assembly, TRUMPF Werkzeugmaschinen GmbH + Co. KG, Hettingen

*Indirectly via Berthold Leibinger Beteiligungen GmbH
**Employee representative

CORPORATE SOCIAL RESPONSI BILITY

AHEAD OF THE CURVE

TRUMPF
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CORPORATE SOCIAL RESPONSIBILITY

AHEAD OF THE CURVE

TRUMPF
Annual Report 2017/18

Fostering dialog on today's most pressing issues

Important guests: Germany's Federal President Frank-Walter Steinmeier and his wife Elke Büdenbender recently paid a visit to the "Lernfabrik 4.0" learning factory at the vocational school in Bietigheim-Bissingen, where they learned how a TRUMPF marking laser works. The Lernfabrik is one of many flagship projects focusing on digitalization and vocational training in the state of Baden-Württemberg. And digitalization is a topic of growing interest on an international level: Australian ambassador Lynette Margaret Wood and French ambassador Anne-Marie Descôtes recently visited Ditzingen as part of a fact-finding mission.

The more people benefit from fundamental change, the more likely it is to herald future success.

TRUMPF's approach to business is guided by the principles of innovation, efficiency and responsibility. These principles drive initiatives in the company and in its immediate environment that are designed to keep the company ahead of the curve, pave the way for the future and create added value for all stakeholders. The greater the number of people who benefit from fundamental change – both now and in the future – the more likely it is to herald future success.

As a family-run, high-tech company, TRUMPF firmly believes in taking responsibility for its actions. Its principles are based on deeply rooted values and many years of tradition, and the roadmap for implementing them stems from global benchmarks such as the UN's sustainable development goals (SDGs). As well as ensuring that, by 2030, children and young people have access to quality education in technical and vocational skills that will prepare them even better for their future employment, the SDG targets also include promoting energy efficiency and cooperation in multisectoral partnerships. These goals also form the basis of corporate social responsibility at TRUMPF.

SOCIETY AND POLITICS

With protectionism and economic crises dominating headlines worldwide, TRUMPF continues to focus on political and social dialog and takes active responsibility for its employees and the broader community at its locations in Germany and abroad. TRUMPF understands that technological progress and social change go hand-in-hand. That was the case during the Industrial Revolution, and it continues to be the case in our era of digital transformation.

Technological progress and social change go hand-in-hand.

Digitalization and Industry 4.0 present companies like TRUMPF with new challenges. Working time models, lifelong learning and tailored vocational training and academic education have become key topics of discussion in political, business and social circles well beyond Germany's borders. International cooperation and exchange played a key role during the past fiscal year, as did dialog with decision-makers in the German government.

In September 2017, TRUMPF opened its smart factory in Chicago, USA, underlining its firm commitment to its second-largest corporate location in the U.S. and to the people who work there, and taking a clear stand against the weakening in the transatlantic relationship. Shortly afterwards, France's ambassador to Germany, Anne-Marie Descôtes, visited the company's headquarters in Ditzingen to find out more about the latest developments in digitalization and Germany's dual

system of vocational training. Australian ambassador Lynette Margaret Wood joined her on the visit to explain Australia's digitalization strategy and to hold in-depth discussions about flexible working hours and bilateral economic and scientific cooperation between the two countries. In late May 2018, the German Embassy in Rome hosted an evening event focusing on the opportunities that digitalized manufacturing offers in Italy and Germany. TRUMPF was on the podium alongside the German ambassador to Rome, Dr. Susanne Wasum-Rainer, and the company was also represented by German and Italian customers.

Education offers the tools we need inside and outside the company to drive innovation and economic progress.

EMPLOYEES AND EDUCATION

Embracing responsibility is something that starts in-house. That's why TRUMPF focuses on efficient products, lifelong learning provided to and by its employees, and an environment that fosters creativity and innovation.

Education offers the tools we need both inside and outside the company to drive innovation and economic progress and to get everyone on board for the journey. That's why TRUMPF realigned its concept of educational collaboration in 2017 with a new focus on corporate volunteering.

Over a dozen educational promoters from within the company are now applying their skills at daycare centers, grade schools and high schools, supervising projects that TRUMPF has launched as part of its Knowledge Factory initiative. The first step is to pair employees with an educational institution that matches their field of expertise, knowledge and experience. Next, they attend training sessions together with the teachers to prepare themselves for their assignment. This provides a useful forum where both sides can learn from each other and develop their skills in tandem. Finally, they carry out the project jointly on site, with TRUMPF mentors offering useful insights gleaned from their day-to-day work. TRUMPF allows employees to set aside a fixed amount of time to commit to the program during their regular working hours.

With information technology now becoming a compulsory subject at numerous schools across Germany, the teaching of IT skills is taking on increasing importance. To get kids and youngsters involved in IT and programming from an early age, TRUMPF has opted to add the Knowledge Factory to its project portfolio and to integrate IT2School in its existing corporate volunteering program.

"I would never have thought that IT could be so cool – and so much fun!"

"In the project we did with TRUMPF at school, we started by making all sorts of different shapes for cookie cutters using the CookieCaster program. Then the company made them for us out of plastic with their 3D printer. The new TRUMPF 3D printing machines for metal were even cooler. You can use them to make just about any kind of figure out of metal, from toys to trophies."

JAKOB KRÄMER

4th grade,
Hermann-Butzer-Schule, Schwieberdingen

BACKGROUND
IT2SCHOOL

The goal of the "IT2School – Discover IT together" project is not just to show pupils how to use information technology, but also to understand and help shape it. This Knowledge Factory project introduces school pupils to information technology based on everyday examples and deals with key IT topics such as communication, data, programming languages, and interaction between hardware and software. It offers students a playful way of exploring information technology in the classroom, fostering their ability to understand IT systems and express their own creativity.

“We hope the CHP plant will actively contribute toward reducing our CO_2 emissions.”

“We see it as a long-term investment in the future – and we take our responsibility to future generations very seriously indeed.”

PETER VOLK

Building Management
TRUMPF Werkzeugmaschinen GmbH, Hettingen

BACKGROUND TO
COMBINED HEAT AND POWER PLANTS

In the past fiscal year, TRUMPF Hettingen installed a combined heat and power (CHP) plant to generate both electrical energy and heat. This energy is used to manufacture and assemble TRUMPF machines and to heat the building. In addition to the 280,000 kilowatt-hours per year (kWh/a) of electricity produced by the generator in the gas-fired CHP plant, some 550,000 kWh/a of heat is generated as a by-product in the form of waste heat. This investment has enabled the Hettingen plant to reduce its primary energy consumption, leading to a significant drop in its power and heating costs.

SUSTAINABLE MANAGEMENT

Sustainable management plays a key role in TRUMPF’s business. Its primary focus is to ensure that its domestic and foreign locations consistently make the most efficient use of energy and resources. Its ultimate goal is to employ the right technologies to reduce energy consumption steadily and permanent over the long term, thereby cutting CO_2 emissions.

This was the backdrop for an innovative pilot project that TRUMPF recently organized together with other companies and civil society. Its aim was to calculate carbon footprints in real time based on primary data.

Over the course of the past fiscal year, TRUMPF extended its ISO 50001-certified energy management system to all its European manufacturing locations. The goal remains the same: using energy data to continuously identify new potential for improvements and savings, thereby enabling the company to consistently implement energy-saving measures across a range of areas and achieve sustainable reductions in CO_2 emissions.

To develop realistic overall energy targets, TRUMPF has carried out analyses of potential savings at all its European production sites and identified, quantified and evaluated the opportunities for systematically improving energy efficiency. Starting in fiscal 2018/19, European TRUMPF manufacturing locations will be given the target of reducing CO_2 emissions by 6,800 metric tons – equivalent to an eight percent cut over the next three years. Key ways to achieve this include switching to LED lighting, optimizing operational processes and making use of combined heat and power generation. As well as sending out a signal that existing resources should be used responsibly, this approach also signifies TRUMPF’s determination to align its goals with the results of the Paris Agreement on climate change.

Consistently efficient energy and resource use at all locations worldwide.

ART AND CULTURE

The creative atmosphere of art and culture provides the perfect stimulus for new ideas, particularly during times of change and transition. That’s why TRUMPF sponsors various museums and continues to nurture long-established ties to the Staatsgalerie art gallery in Stuttgart. The fruits of this partnership include collaborative projects on employee education and training. In addition, TRUMPF has been selected as the main sponsor of the Staatsgalerie Stuttgart’s 175th anniversary, helping to make art and culture accessible to many different target groups during the *#meinMuseum* anniversary exhibition.

TRUMPF is also continuing its collaboration with the Internationale Bachakademie Stuttgart as part of the "Unternehmen Musik III" music festival, an event that aims to create closer ties between businesses and the arts across the entire region. The Bachakademie concert at the TRUMPF site in Ditzingen is part of a steadily growing TRUMPF program of cultural activities for employees that combines literary, musical and artistic events.

SOCIAL COMMITMENT

In an era of political and social challenges, it is more important than ever to demonstrate foresight in developing sustainable solutions. No one acts in isolation – least of all companies. Everyone contributes to a positive form of interaction based on mutual respect. That's why TRUMPF will be continuing to work with refugees, reaffirming its commitment to helping them integrate in society and the job market. In 2018, the company embarked on a new phase of corporate volunteering as part of the Joblinge initiative. This involves giving employees time off work to help new arrivals – training them how to apply for jobs, giving them insights into what it's like working for a German business, and highlighting possible career paths they could follow. To make it easier for young refugees to enter the job market, TRUMPF also offers entry-level training and opportunities to join internships programs at several of its sites, as well as apprenticeships and places on higher education courses.

Under the motto of breaking down barriers and making a positive contribution, a number of employees once again participated in sporting events under the TRUMPF flag in 2017 and 2018. Donations flooded in for a number of good causes, including charity runs such as the Ditzingen Race for Life, which raises money for people with cystic fibrosis, and bike races such as the Lila Logistik Charity Bike Cup. In addition, TRUMPF continued to sponsor inclusive sporting events including a sitting volleyball training session with players from the national team and a soccer match against a regional team of players with intellectual disabilities. As well as the sporting achievement itself, the focus in all cases is on having fun and finding playful ways to break down people's fear of others.

TRUMPF strives to find innovative solutions that embrace trends and opportunities well ahead of the curve and to translate these solutions into sustainable initiatives. As a family-run company, we understand this involves taking responsibility for our actions every single day. We firmly believe in this approach and always focus on results. Our goal is to create added value for everyone involved.

Corporate volunteering can help prepare young refugees to enter the job market.

"I think corporate social responsibility is very important."

"By collaborating with the Joblinge organization, TRUMPF gives me the opportunity to devote some of my working hours to integrating young refugees. With my practical insights into the world of work, I can help them get to grips with typical German work situations that might be very different where they come from. The Joblinge scheme is so much fun, and it's tremendously exciting and enriching for everyone involved."

EVA-MARIA SCHWAB

Used Machines
TRUMPF Werkzeugmaschinen GmbH, Ditzingen

BACKGROUND TO JOBLINGE

Joblinge is a collaboration between businesses, state bodies and private individuals to support disadvantaged young people in their efforts to find work. It aims to provide real job opportunities and foster sustainable integration in the labor market and in wider society. The success rate of the initiative is well above average. As well as helping participants to gain suitable qualifications, it also provides mentoring from volunteers and ongoing support during their training. 70 percent of the young people involved in the program make the leap into the world of work.

GROUP MANAGEMENT REPORT

AHEAD OF THE CURVE

TRUMPF
Annual Report 2017/18

GROUP MANAGEMENT REPORT

AHEAD OF THE CURVE

TRUMPF
Annual Report 2017/18

Group Management Report

for fiscal 2017/18

STRUCTURE AND BUSINESS ACTIVITIES

Our mission is to advance production technology, making it not only digitally connected, but also even more economical, precise and future-proof. We want to make manufacturing – including its upstream and downstream processes – more efficient. In doing so, we will help build the industrial world of tomorrow. We are the market and technology leader in machine tools and lasers for industrial manufacturing, and are shaping almost every sector with our innovations. Our software solutions are paving the way for the smart factory and we are facilitating high-tech processes in industrial electronics. About 13,400 people work at TRUMPF worldwide (June 30, 2018), embodying TRUMPF's positive attitude and achievements as a family-run company.

Laser Technology and Machine Tools – our business divisions

Our Machine Tools and Laser Technology divisions are combined organizationally under the umbrella of the holding company, TRUMPF GmbH + Co. KG.

Machine tools for flexible sheet metal and tube processing represent our largest area of activity. Our portfolio includes machines for bending, punching, and combined punch and laser processing as well as laser cutting and laser welding applications in different sizes. Diverse automation solutions and a wide range of software for digitally connected production solutions round off our portfolio.

Our product range in laser technology comprises laser systems for the cutting, welding and surface treatment of three-dimensional parts. We provide high-performance CO_2 lasers, disk and fiber lasers, direct diode lasers, ultrashort pulsed lasers, marking lasers and marking systems. The Laser Technology division also includes our electronics products, which comprise direct-current, high-frequency and medium-frequency generators for inductive material heating, surface coating and surface processing by means of plasma technology, and for laser excitation.

Our portfolio also includes 3D print systems for metallic components and medical implants. In this area, we deploy laser metal fusion and laser metal deposition – the two technologies which are key to additive manufacturing.

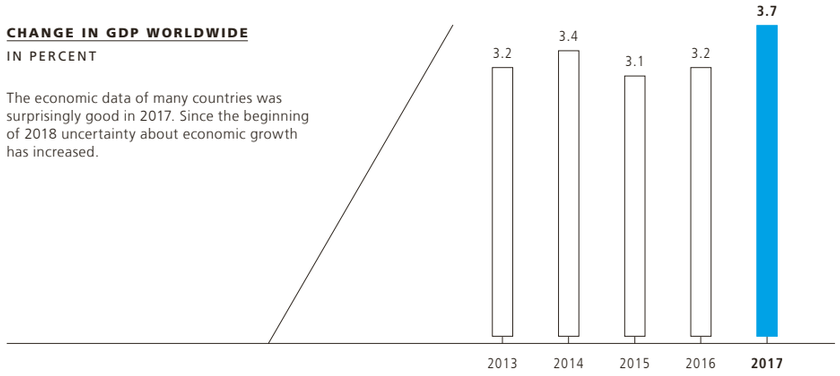
Another of our product fields is EUV lithography, where extreme ultraviolet radiation is used to manufacture even more compact and efficient circuits and microchips.

Graphic 01

CHANGE IN GDP WORLDWIDE

IN PERCENT

The economic data of many countries was surprisingly good in 2017. Since the beginning of 2018 uncertainty about economic growth has increased.



Source: International Monetary Fund

GROUP MANAGEMENT REPORT

Global presence – close to our customers

The TRUMPF Group is represented in all major markets worldwide. We have 77 subsidiaries operating in Europe, the Americas and Asia-Pacific. We have production facilities in Europe (Germany, France, the UK, Italy, Austria, Poland, Switzerland and the Czech Republic), the Americas (the United States and Mexico) and Asia-Pacific (China and Japan).

Our headquarters is located in Ditzingen, Germany, and the Machine Tools and Laser Technology divisions are run from there.

We support our customers with comprehensive services that cover the entire lifecycle of our products. We offer a full range of services – from financing, tools and spare parts, technical service, consulting and training through to functional extensions, process optimization, monitoring and analytical tools as well as trade in pre-owned machinery.

ECONOMIC REPORT

Economic environment

Surprisingly positive economic data at the start of the fiscal year

Graphic 01

The economic data of many countries was surprisingly good in 2017, with economic growth gaining momentum and proving better than forecast. According to statistics of the International Monetary Fund (IMF), real GDP grew 3.7 percent, after 3.2 percent in 2016. Growth accelerated considerably in advanced economies, from 1.7 percent in 2016 to 2.4 percent in 2017. At 4.7 percent, economic growth in emerging and developing economies was 0.3 percentage points higher than in the previous year.

The German economy, too, experienced a strong upswing in 2017, with GDP rising by 2.2 percent overall. That is substantially higher than the average of the last ten years (+1.3 percent).

The upswing was fueled by robust private consumption, rising government spending and capital expenditure on construction. Corporate spending on equipment rose as well.

AHEAD OF THE CURVE

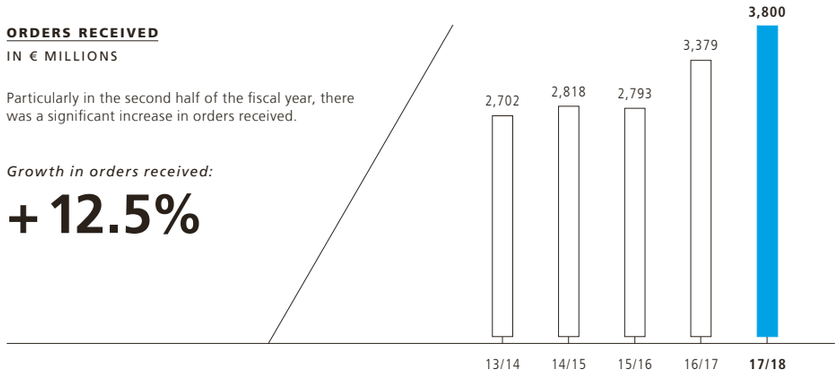
TRUMPF
Annual Report 2017/18

Graphic
02

ORDERS RECEIVED
IN € MILLIONS

Particularly in the second half of the fiscal year, there was a significant increase in orders received.

Growth in orders received:
+ 12.5%



Both the EU and the eurozone posted stronger growth in 2017 than in any of the previous ten years. Real GDP grew by 2.5 percent in the EU and in the eurozone, with both exports and the domestic economy driving growth.

After a weak start, the U.S. economy began gaining pace, with economic output rising by 2.3 percent, after only 1.5 percent in the previous year.

The Japanese economy remained on a positive trajectory, too, growing 1.8 percent, after adding just 1.0 percent in 2016.

Emerging and developing economies put in a positive performance, too. China's economy continued to grow, adding 6.8 percent. Brazil shook off its recession in 2017, with economic output increasing by 3.4 percent.

In the final quarter of the fiscal year, increasing trade conflicts between the U.S., China and the European Union stoked uncertainty about economic growth in 2018. In Germany, economic research institutes lowered their forecasts for the current calendar year and the next.

Upswing for the machine tool industry

The German machine tool sector experienced an upswing in 2017. According to preliminary figures of Germany's Federal Statistical Office, sector production rose by 3.1 percent in real terms.

This growth in production was almost entirely due to a rise in exports. The biggest growth drivers were exports to China (+22.6 percent) and the U.S. (+11.6 percent), but exports to EU partners also rose by a strong 5.1 percent.

Surging growth in the laser technology market

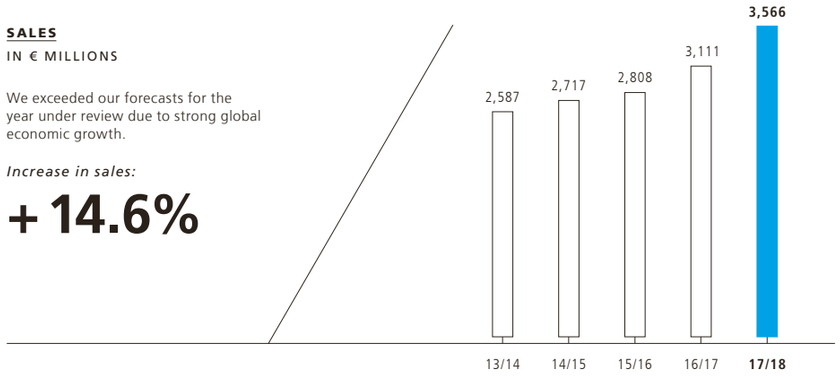
According to an analysis by Optech Consulting, the global market for laser systems for material processing rose by 28.2 percent in 2017 to reach a volume of €15.0 billion (previous year: €11.7 billion). China already accounts for around 30 percent of the global market in laser systems for material processing, and the other Asian countries 31 percent. Europe holds 23 percent of the market, and the Americas 16 percent.

Graphic
03

SALES
IN € MILLIONS

We exceeded our forecasts for the year under review due to strong global economic growth.

Increase in sales:
+ 14.6%



The global market for laser beam sources in material processing grew by 36.7 percent to €4.1 billion (previous year: €3.0 billion).

Business development

New records set for orders received and sales

Graphic 02 *Graphic 03*
In the year under review, TRUMPF was again able to post substantial increases in both orders received and sales. Growing by 12.5 percent to €3.80 billion, orders received set a new record high (previous year: €3.38 billion). We also posted an increase of 14.6 percent in sales, setting a new record of €3.57 billion (previous year: €3.11 billion). Our book-to-bill ratio was once again greater than 1.

Profit before taxes rose by 52.3 percent to €514 million (previous year: €337 million), resulting in a net operating margin of 14.4 percent (previous year: 10.8 percent). The number of people working for the company worldwide rose by 12.9 percent to 13,420 (previous year: 11,883).

Given that we had assumed only single-digit growth rates because of ongoing geopolitical crises and economic uncertainty, we exceeded all of our forecasts for the year under review.

Orders received remain at a high level

Particularly in the second half of the fiscal year, there was a significant increase in orders received, which were up by 12.5 percent to €3.80 billion (previous year: €3.38 billion). Both of our business divisions contributed to this growth. At the end of the reporting period, orders received came to €1.32 billion (previous year: €1.06 billion). The forward order book amounted to 3.9 months (previous year: 3.7).

Machine Tools and Laser Technology on track for growth

Sales at our Machine Tools division rose by 11.3 percent to €3.02 billion (previous year: €2.70 billion), fueled by growth of 18.8 percent in sales of machinery.

The Laser Technology division achieved a sales increase of 21.5 percent to €1.50 billion (previous year: €1.23 billion).

Here, growth was led by electronic products (+20.5 percent) and EUV lithography (+57.3 percent).

As there is a significant supply relationship between these divisions, we post a significant volume of corresponding sales. Sales are consolidated within the TRUMPF Group.

Generally positive trend in TRUMPF's markets

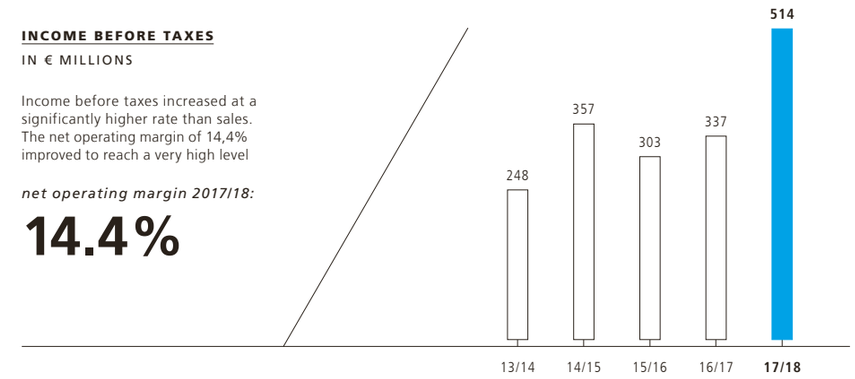
In Germany, our strongest individual market, we stayed on the growth trajectory of the previous year and posted higher sales. Sales were up by 15.6 percent to €719 million (previous year: €622 million). The majority of other European markets also performed well, notably Italy, where sales grew strong by 31.8 percent to €173 million. Another growth driver was EUV lithography sales to our customer ASML in the Netherlands. In Western Europe excluding Germany, sales rose by 22.2 percent to €950 million (previous year: €777 million). After a slight decline in the previous year, sales in Eastern Europe rose by a strong 29.5 percent to €357 million (previous year: €276 million).

By contrast, growth in the North American market was somewhat more subdued than in the previous year, also due to the decline in value of the U.S. dollar against the euro in fiscal 2017/18. Sales in the U.S., our third-largest market, grew by 5.4 percent to €444 million (previous year: €421 million). Performance was stronger in the other markets of the Americas. Canada grew by 32.7 percent to €69 million. Sales in Central America climbed substantially (up 33.6 percent to €49 million), while growth was also above average in South America. All in all, sales in North, Central and South America were up by 11.4 percent to €601 million (previous year: €540 million).

With a few exceptions, performance was positive in Asian markets. Overall, sales in Asia rose by 3.5 percent to €904 million (previous year: €873 million). After a strong performance in the previous year, we again posted double-digit sales growth of 13.0 percent in China, our second-largest market, to reach €457 million (previous year: €404 million).

Sales in South Korea were substantially lower (down by 25.1 percent to €158 million), after major new contracts had generated exceptionally high business volume in the previous year.

Graphic
04



Only slight variation in sales shares

The growth rates in the various regions had only a slight effect on the corresponding sales shares. Germany's sales share was virtually unchanged at 20.2 percent (previous year: 20.0 percent). Europe excluding Germany accounted for 36.7 percent of our sales (previous year: 33.9 percent). The American markets' share declined slightly to 16.9 percent (previous year: 17.4 percent), as did the Asian markets' (25.4 percent, after 28.1 percent in the previous year).

Results of operations, net assets and financial position

Excellent earnings and substantially improved return on sales

Graphic
04

In fiscal 2017/18, income before taxes rose by 52.3 percent to €514 million (previous year: €337 million). The return on sales improved from 10.8 percent in the previous year to 14.4 percent, a very high level.

The operating result rose by 18.6 percent year over year to €3.75 billion (previous year: €3.16 billion).

Other operating income rose by a substantial 42.0 percent to €133 million (previous year: €94 million) and included not only income from the sale of a property in Switzerland that is no longer used for commercial purposes, but also higher exchange rate gains.

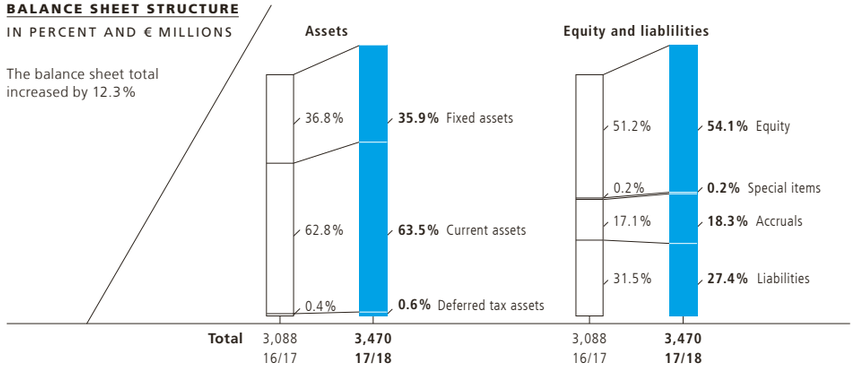
The cost of materials rose by 17.4 percent to €1.56 billion (previous year: €1.33 billion). The ratio of cost of materials to operating result improved once again, coming in at 41.7 percent (previous year: 42.2 percent).

Personnel expenses were higher – due to the growth-driven expansion of our workforce and to increased activities in promising fields such as digitalization, additive manufacturing and other new business areas – rising by 11.0 percent to €995 million (previous year: €897 million). At 26.6 percent, the ratio of personnel expenses to operating result was down slightly (previous year: 28.4 percent).

In fiscal 2017/18, other operating expenses rose by 18.3 percent to €615 million (previous year: €520 million), mainly due to higher selling costs, to expenses for external personnel and to IT consultation costs.

Graphic
05

BALANCE SHEET STRUCTURE
IN PERCENT AND € MILLIONS



The financial and investment result came to €–37 million (previous year: €–29 million). This change was chiefly attributable to higher expenses from the discounting of accruals.

Tax expenses amounted to €115 million in fiscal 2017/18 (previous year: €75 million). Taxes on income and earnings totaled €102 million (previous year: €61 million), while other taxes came to €13 million (previous year: €14 million).

Net assets and financial position: equity ratio rises while liabilities decrease

Graphic
05

The balance sheet total increased by 12.3 percent to €3.47 billion in fiscal 2017/18 (previous year: €3.09 billion).

Fixed assets increased to €1.24 billion (previous year: €1.14 billion), a rise of 9.5 percent. Additions to tangible assets comprised, in particular, investments in buildings.

Current assets, including prepaid expenses and deferred tax assets, increased by 14.0 percent to €2.22 billion (previous year: €1.95 billion).

Inventories (after offsetting against payments on accounts received) rose by 23.0 percent to €773 million (previous year: €629 million). While this increase considerably exceeded the sales growth of 14.6 percent, it mirrors the trend in the order backlog. Inventories ensure our ability to fill orders received, which are substantially higher than sales. Consequently, days inventories outstanding (DIO) increased from 73 to 78. Payments on account received rose in proportion to sales, climbing by 13.3 percent to €179 million (previous year: €158 million). As a result, days payments received (DPR) remained on par with the previous year, at –18 days.

Trade receivables grew by 18.9 percent to €779 million (previous year: €655 million). This was due, in particular, to the higher sales posted at the end of the fiscal year, and caused days sales outstanding (DSO) to rise marginally, to 79 (previous year: 76 days).

Trade payables rose as well, climbing by 19.2 percent to €269 million (previous year: €226 million), causing days payables outstanding (DPO) to increase from –26 to –27.

Working capital – the sum of inventories and trade receivables less payments on account received and trade payables – grew by 22.7 percent to €1,105 million (previous year: €901 million). The ratio of working capital to sales rose from 29.0 percent to 31.0 percent.

Cash and cash equivalents declined by 9.5 percent to €571 million (previous year: €631 million). The cash inflow from operating activities (€+434 million ; previous year: €419 million) and the continuing high level of cash outflow from operating investing activities (€-233 million (previous year: €-170 million) resulted in a free cash flow of €+201 million (previous year €249 million).

The cash outflow from other investing activities stands at €-81 million (previous year: € –115 million) and includes investments in current securities as well as in medium-term financial investments with residual maturities of more than three months which are reported as other assets. Due to an investment in a special securities fund current securities increased to € 50 million (previous year: € 0 million) during this fiscal year.

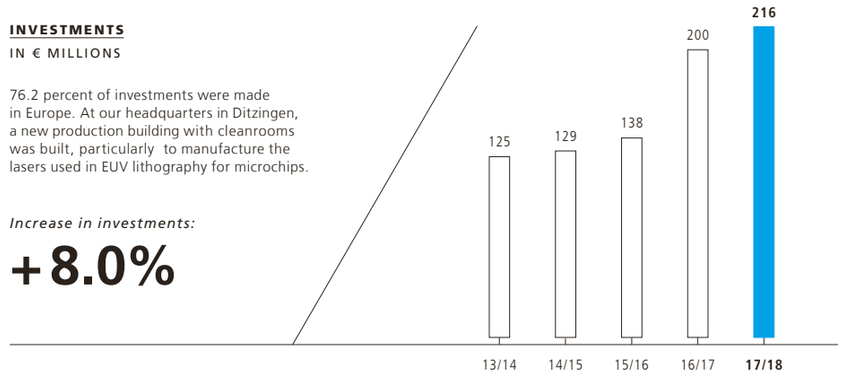
The medium-term financial investments declined slightly by 6.4 percent to €56 million (previous year: €60 million). The cash outflow from financing activities amounts to €-169 million (previous year: €-112 million) and includes scheduled repayments of financial liabilities which consequently decreased by 38.3 percent to €108 million (previous year: €176 million). As a result, the sum of all cash relevant changes of cash and cash equivalents amounts to €-48 million (previous year: €+22 million).

Graphic
06

INVESTMENTS
IN € MILLIONS

76.2 percent of investments were made in Europe. At our headquarters in Ditzingen, a new production building with cleanrooms was built, particularly to manufacture the lasers used in EUV lithography for microchips.

Increase in investments:
+8.0%



The net financial position – the sum of cash and cash equivalents, current securities and medium-term financial investments included under other assets less financial liabilities – rose by 10.1 percent to €568 million (previous year: €515 million). This development was driven by an increase of current securities and a decrease of financial liabilities.

Equity rose by 18.6 percent to €1.88 billion (previous year: €1.58 billion). The equity ratio increased by 2.9 percentage points to 54.1 percent (previous year: 51.2 percent).

Economic equity, which includes long-term liabilities to managing partners, climbed by 13.1 percent to €2,17 billion (previous year: €1,92 billion), increasing the economic equity ratio from 62.0 percent to 62.5 percent.

Accruals rose by 20.8 percent to €636 million (previous year: €527 million). This change was mainly due to higher pension and other personnel-related accruals.

On balance, liabilities declined by 4.4 percent to €878 million (previous year: €918 million). The trend in financial liabilities and trade payables has already been discussed above. Liabilities to partners decreased by 5.7 percent, falling from €438 million in the previous year to €414 million. A rise due to the high result of TRUMPF GmbH + Co. KG is opposed by an allocation to capital reserves, which is fed by liabilities to partners. The partners used the good economic situation to strengthen the capital reserves.

Investments and acquisitions

Investments focus on expanding capacity for growth

Graphic
06

After a substantial rise in previous year, investments increased in the course of the growth strategy again by 8.0 percent to € 216 million (previous year: € 200 million). Tangible assets accounted for € 203 million (excluding the internally used self-produced machines in the amount of € 91 million). Intangible assets came to € 13 million.

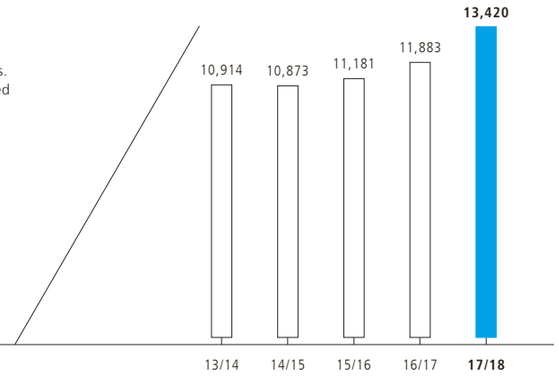
Land and structural extensions accounted for 43.1 percent of the total amount, plant and machinery for 17.8 percent, and office and business equipment for 32.7 percent.

Graphic
07

EMPLOYEES

TRUMPF in Germany had 6,778 employees. Outside of Germany, the number employed rose to 6,642

Number of employees:
+12.9%



A total of 63.1 percent of the investments were made in Germany. Around two-thirds of the total went toward construction projects at our headquarters in Ditzingen, where we built a production building with cleanrooms and office space to expand our high-tech production facilities, particularly in order to manufacture the lasers used in EUV lithography for microchips. We also expanded capacity at our Teningen and Schramberg locations in Germany.

Europe excluding Germany accounted for 13.1 percent of our investments. In Russia, we invested in the expansion of our sales office. The Americas accounted for 14.9 percent of our investments and Asia for 7.2 percent. We expanded capacity at our subsidiary in Yangzhou to create our biggest production site outside Germany.

The ratio of investments to fixed assets came to 6.1 percent (previous year: 6.4 percent). The €216 million invested in tangible and intangible assets again exceeded depreciation and amortization, which totaled €156 million (previous year: €138 million).

We made three major acquisitions in the pursuit of our strategy to enhance our technological expertise.

In January 2018, we acquired AMPHOS, a manufacturer of ultrashort pulsed lasers. Ultrashort pulsed lasers are especially commonplace in electronics manufacturing, where they are used to produce items such as printed circuit boards, displays and cover glass.

In October 2017, we strengthened our supply chain for EUV technology by acquiring 85 percent of U.S.-based Access Laser, a company that manufactures low-output precision lasers as well as high-performance variants with peak outputs of up to 1 kilowatt. The low-output lasers are used to generate beams in EUV lithography systems.

At the very start of fiscal 2017/18, we acquired a majority interest in BeSpoon, a French company specializing in position tracking. BeSpoon's technology makes it possible to locate objects in rooms and production facilities with centimeter accuracy and in real time. We want to offer our sheet-metal processing customers this position-tracking technology as an integrated solution from our TruConnect portfolio of products.

Graphic 08

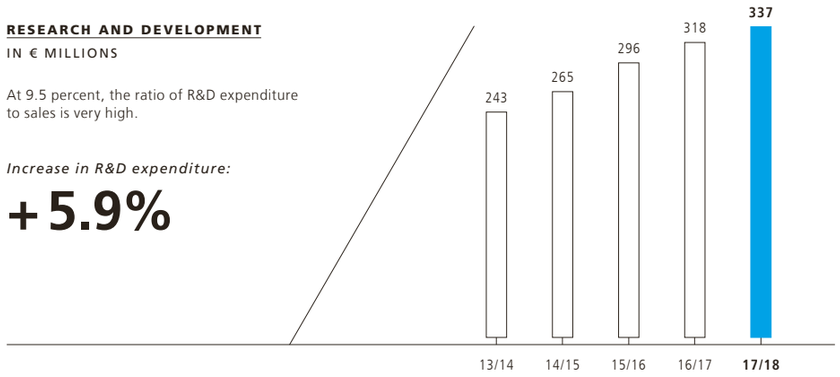
RESEARCH AND DEVELOPMENT

IN € MILLIONS

At 9.5 percent, the ratio of R&D expenditure to sales is very high.

Increase in R&D expenditure:

+5.9%



Employees

New hires worldwide

Graphic 07

The number of employees working for TRUMPF worldwide increased by 12.9 percent to 13,420 (previous year: 11,883) as of June 30, 2018.

In Germany, TRUMPF had 6,778 employees on the balance sheet date, 12.5 percent more than in the previous year (6,023). The number of employees outside of Germany rose by 13.3 percent to 6,642 (previous year: 5,860). This increase in the workforce was attributable not only to the rising volume of business, but also to expanding activities in additive manufacturing and EUV, and to our digitalization strategy.

The training of young skilled workers, engineers and business administrators is very important to us. In the year under review, 450 young people completed a training course or co-op work-study program. The Group's training rate stood at 3.5 percent (previous year: 3.9 percent). This decrease was due, on the one hand, to the strong growth in personnel numbers at TRUMPF and, on the other, to the incipient lack of qualified staff in the market, especially in technical professions.

The ongoing digital transformation of our company calls for new skills. By deploying new, innovative teaching formats – such as its own learning platform – as well as agile teamwork methods, TRUMPF is constantly endeavoring to ready its employees for the challenges of the future working world.

RESEARCH AND DEVELOPMENT

High R&D ratio for unique innovative strength

Graphic 08

TRUMPF once again increased its investments in research and development (R&D) in fiscal 2017/18, with expenditure rising by 5.9 percent to €337 million (previous year: €318 million). At 9.5 percent, the ratio of R&D expenditure to sales was again very high (previous year: 10.2 percent). The number of employees working on new products for TRUMPF climbed by 13.2 percent to 2,087 (previous year: 1,843).

Graphic 09

Our central Research and Development department takes a comprehensive, long-term approach to managing technology and innovation, one that goes beyond the mere implementation of specific innovation projects in the divisions' R&D units. By forging close ties with technology centers around the world, we can gain timely insights into high-tech trends of relevance to us.

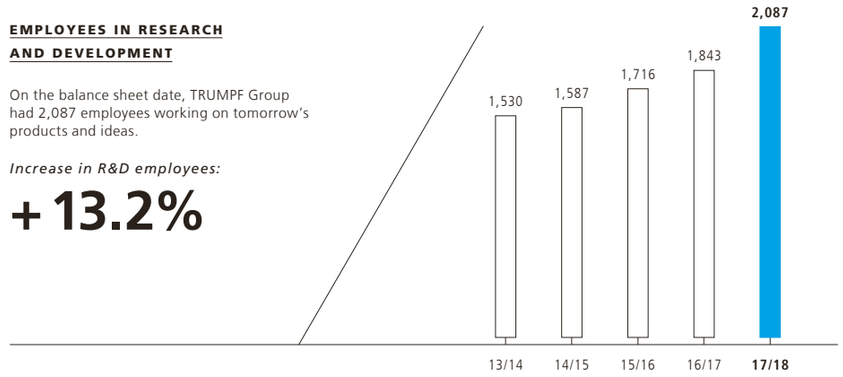
Graphic 09

EMPLOYEES IN RESEARCH AND DEVELOPMENT

On the balance sheet date, TRUMPF Group had 2,087 employees working on tomorrow's products and ideas.

Increase in R&D employees:

+13.2%



For years, we have had a successful international technology scouting program in place. Its purpose is to identify start-ups that fit with TRUMPF's business areas. That can lead to M&A projects that complement our R&D activities or the product portfolio of a particular division. Alternatively, it can give rise to venture capital projects. We have proactively expanded TRUMPF Venture GmbH, an entity that grants us insights into the open innovation scene. In combination with our technology scouting program, it can help TRUMPF live up to its promise of being a powerhouse of innovation. We invest in innovative start-ups that, further down the line, could open up new business areas for TRUMPF, and we actively encourage TRUMPF's business units and its start-ups to share information with each other that could be beneficial for both sides. Beyond that, TRUMPF has launched its "Internehmertum" program. Employees can put forward ideas under this program to encourage entrepreneurship within the TRUMPF workforce. These are then developed in various phases within the company and may result in the establishment of a start-up. The underlying idea is to promote a spirit of innovation among employees and, ideally, build on that to create new business models for TRUMPF.

OPPORTUNITIES AND RISKS

Risk management

As a global high-tech company, TRUMPF is exposed to a multitude of risks, which is why we have a sophisticated risk management system in place. A central risk manager ensures that risks in all areas are regularly identified, evaluated and monitored in a uniform manner across the Group, and that any correlations between risks are identified. The results are presented to management on a regular basis. Our central Corporate Development department defines strategic development opportunities. Innovation management, which is steered centrally, as well as series and sector managers in the individual business fields, can also help identify entrepreneurial opportunities and risks.

The Group's Managing Board and its heads of business divisions and central corporate departments are given monthly updates on the company's results of operations, net assets and financial position. The "orders received" metric is updated in daily reports. Key financial data – and analyses of that data by the Controlling department – provide the basis upon which the Group Management Board identifies and evaluates potential risks and, where necessary, decides on appropriate countermeasures.

Our corporate planning process includes an analysis of alternative scenarios for possible trends within the TRUMPF Group and their potential risks. An interest rate and currency committee meets once a month at Group level to manage and control cash flow as well as currency and interest rate risks. Market and competitor analyses enhance risk transparency still further.

Market opportunities and risks

The prospects for the global economy are generally positive at the present time. The International Monetary Fund (IMF) expects to see growth of 3.9 percent in 2018 and again in 2019, with the pace of growth weakening in Japan and the eurozone. Of the advanced economies, the U.S., in particular, is stimulating growth, amongst other things through its relaxed fiscal policy. The IMF also expects emerging and developing economies to deliver dynamic growth. Yet risks remain that could jeopardize the currently positive trend.

These include uncertainties in the area of foreign trade and the threat of a full-blown trade war between the U.S. and China, most notably. Such a conflict could ultimately trigger a global economic crisis and also poses risks for the stability of international financial markets. The slow progress being made in the Brexit negotiations and the prevailing trends toward nationalism and protectionism may also have repercussions for the real economy. Further risks are posed by unresolved geopolitical crises and potential turbulence on international financial markets.

We nonetheless expect our company to perform well, given our strong market position in the machine tools and laser technology fields, and our consistent focus on promising growth areas.

Opportunities offered by end-to-end digitalization of the process chain
TRUMPF offers its customers a comprehensive product portfolio for digitally connected production. In this context, TruConnect solution modules and the AXOOM software platform enable both the vertical and horizontal connectivity of production processes. We provide in-depth advice to our customers on the introduction of digitally connected processes and repeatedly find that indirect processes, in particular, offer huge potential for improvement. That is why we, too, are systematically digitalizing our own value chain and have taken an interdisciplinary approach to this challenge. The optimization measures implemented are designed to have a positive effect on the entire order-to-cash process.

Opportunities from the growing demand for EUV lithography
Manufacturers of microchips are gradually adding EUV lithography systems to their production facilities. High-power laser amplifiers from TRUMPF play a key role in the manufacture of microchips using EUV lithography. They make it possible to generate a bright plasma, which provides the extreme ultraviolet (EUV) radiation needed for exposure of the wafers. In the near future, we expect several customers to start volume production using these systems.

Opportunities in the additive manufacturing market
The market for additive manufacturing methods has been growing at a very fast pace for years. More and more industries – e.g. aircraft construction, automotive production, medical technology, tool and die making – are using TruPrint machines. TRUMPF is the only manufacturer to offer both methods relevant to industrial metal 3D printing: laser metal fusion and laser metal deposition. Robust machines, digital processes and the right services are integral parts of our industrial solutions.

Opportunities from our sales financing solutions
TRUMPF provides its customers with quick, time-saving access to investment finance in the shape of loan and leasing options. In addition to financing TRUMPF's own products, these options enable customers to finance machinery from other manufacturers, vehicles and, in Germany, even commercial properties. In financial terms, this allows us to tap global markets faster and more efficiently. We will gradually add further services to our financing portfolio.

Financial opportunities and risks

The TRUMPF Group maintains its liquidity through both medium-term and long-term measures. We increased our liquidity reserves in relation to the previous year once again. The cash is invested in short-term instruments in the money market. When investing our liquidity reserves, we spread the risk by allocating our investments to several different financial institutions and instruments. This has enabled us to avoid negative interest. We work together solely with banks that have good credit ratings. We have put in place a revolving credit facility with our core banks, which has secured the majority of our lines of credit at attractive rates until 2022. In order to safeguard pensions, we have concluded a contractual trust agreement (CTA) for €50 million. It ensures the funds are used for their intended purpose.

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Our liquidity reporting system enables us to generate daily liquidity reports for all of our subsidiaries. Currency and interest rate risks constitute further financial risks for us. Since the eurozone is our main market, accounting for 43.7 percent of our sales – and because we are partly able to offset foreign currency payments within the company through our global production alliance and global procurement system – we view our currency risk as limited.

TRUMPF uses derivative financial instruments solely to hedge underlying business transactions and not for speculative purposes. The risk of fluctuations in the market prices of forward exchange transactions is offset by the opposite trend in the market value of the underlying transactions. Hedging takes place within the TRUMPF Group companies to cover currency risks resulting from posted, pending and anticipated underlying transactions. TRUMPF also enters into external hedging transactions with banks with good credit ratings. Such transactions are made in accordance with the internally concluded forward exchange deals and take account of the net exposures.

We make systematic use of standardized currency hedging instruments – such as forward exchange transactions and currency options – to hedge our net exposures in U.S. dollars, Japanese yen, Chinese renminbi, Korean won, Swiss francs, British pounds, Czech crowns and Polish zloty. Other currencies are hedged on a project-related basis. In the eurozone, we concentrate our liquidity on a daily basis using a cash-pool system that ensures transnational liquidity balancing. We have a comparable system in place at our subsidiaries in China. Multilateral netting of accounts receivable and payable increases transparency and facilitates the processing of internal payments.

We enhanced our internal control system in the year under review and ensured that it is fully documented. Internal audits provide additional transparency on the situation at our subsidiaries.

Strategic and operational opportunities and risks

Innovations

We are quick to respond to emerging trends in technology. As part of our innovation management activities, we maintain a technology roadmap that ensures the availability of future technologies, identifies disruptive ones, and initiates meaningful steps for their industrialization. We also seek to forge close ties with universities, non-university research institutes or relevant start-ups – our venture capital company being a dedicated conduit for the latter. We believe institutional research in projects with multiple partners to be a key success factor, as it helps us keep abreast of emerging trends in our high-tech fields.

Intellectual property

We safeguard our investments in research and development by ensuring that our R&D and patent specialists work hand in hand. Our goal is to develop a patent portfolio that grants TRUMPF advantages in the market in terms of freedom of action, exclusivity and patent exploitation. Our patent law officers support the transformation of intellectual property into new technologies and help ensure that patents are created, evaluated and applied in a targeted manner. We also register property rights for design innovations, simultaneously maintaining our focus on our core markets.

Acquisitions

We make targeted acquisitions in order to improve our position in our markets and fields of technology. Before making any acquisition, we carefully consider all aspects involved. An M&A committee consisting of members from our divisions and central departments evaluates any potential acquisitions. Due diligence provides us with the greatest possible certainty about the future development potential of the M&A project. We reduce the risk still further by means of corresponding agreements in the purchase contracts.

Procurement

We successfully continued our Purchasing Excellence program in the year under review. In addition, we continuously review the purchasing volume for further optimization potential and coordinate calls for tenders centrally, especially where the procurement of non-production material is concerned.

We keep risks low through a comprehensive system of supplier management. The careful selection and regular assessment of our strategic suppliers, combined with a rigorous supplier approval process, provide the necessary clarity on potential risks at all times. Ongoing

monitoring of delivery quality and reliability enables us to formulate corresponding quality assurance and supplier development measures. Our basic supplies from third parties were guaranteed at all times. Due to growth and to the high volatility of individual projects, there were isolated instances of delivery bottlenecks. However, our proactive system of bottleneck management meant their impact was immaterial. We took appropriate measures to limit the effects of higher commodity prices.

Production

We are constantly evolving and refining our production processes. The digital connectivity of the entire order-to-cash process also affects large parts of production, and we have already implemented successful projects in this area. Our goal is to have all of our production sites fully digitalized by 2020. We are continuing to press ahead with the systematic standardization of our processes, a basic condition for the digital transformation. Our lean production philosophy SYNCHRO is a crucial prerequisite in this respect.

We have identified the business interruption risks in production and taken preventive measures against them. We have examined and assessed critical production processes. Production downtimes can be avoided by increasing the flexibility of our production facilities or by temporarily relocating production, and extensive emergency scenarios are already in place to this effect.

An international insurance policy and local cover provide adequate protection against property damage, fire damage, business interruptions as well as employer's and product liability risks. We regularly assess and audit our production sites together with our insurance broker.

Information technology

We keep a very close watch on IT risks. We constantly monitor our central IT systems and have launched – and, in some cases, already completed – projects to continuously improve security. That entails organizing our IT landscape so that it is optimized for security and investing in hardware and software on a regular basis.

Employees

At 4.6 percent in the Group and 2.4 percent in Germany, our employee turnover rate is low. Demographic change and a lack of qualified staff in technical professions continue to present challenges. As a result, one of our top priorities is to recruit and retain the next generation of skilled workers. Our flexible working time model makes us a very attractive employer, especially in Germany.

The goal of our Group-wide occupational safety initiative is to reduce accidents worldwide to a best-in-class level. To this end, we are proactively implementing our occupational safety policy and developing an integrated management system.

Compliance program

TRUMPF has introduced a Group-wide compliance program. The code of conduct describes the company's expectations in this regard and requires that all TRUMPF Group employees abide by the law and adhere to ethical standards in their business dealings. It also defines the basic rules that must be observed at TRUMPF. All our employees undergo training in this program on a regular basis.

Assessment of the company's risk situation

There are no identifiable risks that could seriously endanger the continued existence of the corporate group. The company's risk management system enables risks to be rapidly identified so that adequate countermeasures can be taken. Our activities are focused on managing financial risks and market risks as well as on identifying entrepreneurial and technological opportunities.

OUTLOOK

Economic environment

Global economy to grow strongly; weaker trend in the eurozone

The sustained growth trajectory of the global economy is reflected in the following outlook.

The IMF expects advanced economies to grow by 2.4 percent in 2018 and 2.2 percent in 2019. The eurozone is anticipated to contribute growth of 2.2 percent in 2018 and 1.9 percent in 2019. According to the IMF's forecasts, Germany will remain roughly on par with the EU average: after growing by 2.2 percent in 2018, it will expand by 2.1 percent in 2019.

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The IMF expects the U.S. economy to grow by 2.9 percent in 2018 and 2.7 percent in 2019, led by the federal government's accommodative fiscal policy. According to the IMF, higher domestic demand and a low unemployment rate will help drive growth.

The IMF also expects dynamic growth to continue in emerging and developing economies, reaching 4.9 percent in 2018 and 5.1 percent in 2019. The IMF says that, in general, the prevailing financial conditions remain beneficial for the upswing. With slightly reduced growth rates of 6.6 percent in 2018 and 6.4 percent in 2019, China will remain below the levels of previous years. India will again spearhead growth, with projections of 7.3 percent for 2018 and 7.5 percent for 2019. The IMF expects to see continued growth in Brazil, with figures of 1.8 percent in 2018 and 2.5 percent in 2019.

Machine tool industry expects 2018 to be another good year

On the back of the positive trend in 2017, the German Machine Tool Builders' Association (VDW) projects a 7 percent increase in production in 2018, led by a sustained order backlog, continuing growth in industrial production, and a surge in capital investment in Germany. According to Oxford Economics, a forecaster and quantitative analyst, the volume of goods exported is likely to increase as well, growing by around 6 percent due to rising global demand for machine tools.

Laser industry to benefit from market growth in Asia

The global laser industry, too, will grow its sales in 2018. Laser Focus World reports that the market will expand by about 5 percent, with China and other Asian markets being the main drivers. Laser Focus World expects sales in North America and Europe to stagnate.

Outlook for the company

Positive sales and earnings outlook for TRUMPF despite economic and trade uncertainties

In view of the good economic outlook in all its regions, and despite persistent political uncertainties, TRUMPF is forecasting further stable growth in fiscal year 2018/19, even though there are increasing signs of an economic cool-down in the first months of the new fiscal year, regardless of the above-mentioned outlook.

We expect orders received and sales to continue to grow, albeit at a slightly lower rate than in the previous year. In light of targeted investments, new growth opportunities and expenditure in areas with a promising future, we expect to maintain the excellent return on sales we achieved in fiscal 2017/18.

In our Machine Tools division, the sales initiative we launched to achieve higher market shares in certain sectors and regions is beginning to bear fruit. We want to build on that by systematically expanding our portfolio to include automation components while maintaining a clear focus on customer benefit. In this context, our portfolio of TruConnect products will support the digitalization of our customers' processes.

We expect the Laser Technology division to deliver further growth in the year ahead. Alongside electromobility and sensor technology, consumer electronics will contribute to be a positive environment. We also expect the positive trend in electronic products to continue and, in particular, want to profit from growth in the semiconductor segment in the coming fiscal year.

We look set to benefit from the dynamic additive manufacturing market. We are systematically tapping new customer groups by offering new machines, technical and process expertise, and technological innovations.

We anticipate a further rise in sales in EUV lithography for the coating of microprocessors. TRUMPF, Zeiss and ASML are still the only providers of this highly innovative production process.

Digitalization is a key component of TRUMPF's business strategy. In addition to offering an ever-growing range of TruConnect products, which are designed to digitalize and optimize our customers' processes, we are also keen to support the digital connectivity of their production. To this end, we are expanding and enhancing the activities of our subsidiary AXOOM to create a business platform for SMEs.

We have taken a variety of strategic measures over the last five years to equip the TRUMPF Group for the future. We have expanded our technological expertise and gained a head start on market trends – all with the goal of creating high levels of customer benefit.

Still, we are aware of the high risks posed by the global economic trend, which was recently reflected in lowered forecasts for economic growth, especially in Germany and the eurozone. While the general consensus among economic research institutes and the IMF is that prospects for growth remain good, the downward revision of forecasts is already an indicator of market unease.

We are well prepared to make fiscal 2018/19 a successful year for the TRUMPF Group. We will be in a position to continue pursuing our ambitious growth targets, but will also retain the speed and flexibility to respond to any potential slowdown in the global economy.

Ditzingen, September 17, 2018

TRUMPF GmbH + Co. KG
Berthold Leibinger GmbH
Dr. phil. Nicola Leibinger-Kammüller, President and Chairwoman
Dr.-Ing. E.h. Peter Leibinger, Vice Chairman
Dr.-Ing. Mathias Kammüller
Dr. rer. pol. Lars Grünert
Dr.-Ing. Heinz-Jürgen Prokop
Dr.-Ing. Christian Schmitz

REGIONAL FACTS & FIGURES

Regional Facts & Figures

Employees by regions

2017-18

Total

13,420

+12.9 %

Germany

6,778

+12.5 %

Western Europe without Germany

2,350

+7.3 %

Americas

1,340

+21.5 %

Abroad

6,642

+13.3 %

Europe without Germany

3,312

+12.9 %

Eastern Europe

962

+29.5 %

Asia-Pacific

1,990

+9.2 %

Changes as of the reporting date of June 30, 2018

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Sales by regions

2017-18

Total

Euro million

3,566

+14.6 %

Germany

Euro million

719

+15.6 %

Western Europe without Germany

Euro million

950

+22.2 %

Americas

Euro million

601

+11.4 %

Abroad

Euro million

2,847

+14.4 %

Europe without Germany

Euro million

1,307

+24.1 %

Eastern Europe

Euro million

357

+29.5 %

Asia-Pacific

Euro million

918

+4.1 %

Changes as of the reporting date of June 30, 2018

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Locations in Europe

Germany

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- Ditzingen / *Headquarters*
- Gerlingen
- Hettingen
- Aachen
- Berlin
- Freiburg
- Herzogenrath
- Karlsruhe
- Munich
- Neukirch
- Schramberg
- Stuttgart
- Teningen
- Unterföhring

Europe

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- Pasching *Austria*
- Sofia *Bulgaria*
- Liberec *Czech Republic*
- Prague *Czech Republic*
- Hagueneu *France*
- Le Bourget du Lac *France*
- Paris *France*
- Luton *Great Britain*
- Rugby *Great Britain*
- Southampton *Great Britain*
- Budapest *Hungary*
- Milan *Italy*
- Turin *Italy*
- Vicenza *Italy*
- Hengelo *Netherlands*
- Spankeren *Netherlands*
- Warsaw *Poland*
- Porto Salvo *Portugal*
- Bucharest *Romania*
- Moscow *Russia*
- Kosice *Slovakia*
- Madrid *Spain*
- Alingsas *Sweden*
- Baar *Switzerland*
- Grüsch *Switzerland*
- Istanbul *Turkey*

Europe

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Locations worldwide

Americas

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- São Paulo *Brazil*
- Mississauga *Canada*
- Apodaca *Mexico*
- Chicago *IL USA*
- Cranbury *NJ USA*
- Detroit *MI USA*
- Farmington *CT USA*
- Reno *NV USA*
- Santa Clara *CA USA*
- Seattle *WA USA*

Asia-Pacific

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- Peking *China*
- Shanghai *China*
- Taicang *China*
- Yangzhou *China*
- Chennai *India*
- Pune *India*
- Jakarta *Indonesia*
- Sagamihara *Japan*
- Yokohama *Japan*
- Kuala Lumpur *Malaysia*
- Manila *Philippines*
- Singapore *Rep. Singapore*
- Seoul *South Korea*
- Gueishan Shiang *Taiwan*
- Bangkok *Thailand*
- Ho Chi Minh City *Vietnam*

worldwide

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Consolidated Balance Sheet

as of June 30, 2018

ASSETS in € '000s	Notes	6/30/2018	6/30/2017
FIXED ASSETS	1		
Intangible assets		63,433	83,771
Tangible assets		1,125,868	1,029,457
Financial assets		55,671	24,062
		1,244,972	**1,137,290**
CURRENT ASSETS			
Inventories (after offsetting against payments on accounts received)	2		
Inventories		*773,078*	*628,717*
Down payments received		*–178,609*	*–157,708*
		594,469	471,009
Receivables	3		
Trade receivables		*779,358*	*655,405*
Other receivables		*13,866*	*1,220*
		793,224	656,625
Other assets	4	160,843	146,824
Cash and cash equivalents, securities	5	620,027	631,007
		2,168,563	**1,905,465**
PREPAID EXPENSES	6	**35,201**	**31,965**
DEFERRED TAX ASSETS	7	**21,046**	**13,684**
		3,469,782	**3,088,404**

EQUITY AND LIABILITIES in € '000s	Notes	6/30/2018	6/30/2017
EQUITY	8	**1,876,548**	**1,582,788**
SPECIAL ITEMS	9	**6,869**	**7,299**
ACCRUALS			
Accruals for pensions and similar obligations	10	231,785	197,157
Other accruals	11	404,684	329,719
		636,469	**526,876**
LIABILITIES	12		
Trade payables		268,813	225,528
Financial liabilities		108,290	175,553
Liabilities to partners		413,592	438,489
Other liabilities		86,910	78,030
		877,605	**917,600**
DEFERRED INCOME	13	**72,291**	**53,841**
		3,469,782	**3,088,404**

Consolidated Profit and Loss Statement

for fiscal year 2017/18

in € '000s	Notes	2017/18	2016/17
Sales revenues	14	3,565,563	3,111,336
Change in inventories and own work capitalized	15	180,704	47,401
Operating result		**3,746,267**	**3,158,737**
Other operating income	16	133,210	93,800
Cost of materials	17	–1,563,108	–1,331,561
Personnel expenses	18	–994,827	–896,537
Amortization and depreciation on intangible and tangible assets		–155,704	–137,945
Other operating expenses	19	–615,248	–520,078
Financial and investment result	20	–36,839	–29,180
Profit before taxes		**513,751**	**337,236**
Taxes on income	21	–102,277	–61,323
Profit after taxes		**411,474**	**275,913**
Other taxes		–12,626	–14,286
Consolidated net profit		**398,848**	**261,627**
Result attributable to minority interests	8	–7,243	–10,188
Consolidated net profit after minority interests		**391,605**	**251,439**
For informational purposes:			
Taxes of partners	21	–56,545	–52,008
Consolidated net profit after minority interests and taxes of partners		**335,060**	**199,431**

Statement of Shareholders' Equity

for fiscal year 2017/18

	Equity of the parent company									Minority interests				Group equity
	Fixed capital and subscribed capital			Revenue reserves										
in € '000s	Subscribed capital	Capital shares	Sum	Reserves according to partnership agreement	Other revenue reserves	Sum		Equity difference from foreign currency translation	Sum	Minority interests before foreign currency translation and gains/losses	Minority interests' difference from foreign currency translation	Minority interests' gains/losses	Sum	Sum
As of June 30, 2016	**3,500**	**95,000**	**98,500**	**82,039**	**1,141,446**	**1,223,485**		**109,859**	**1,431,844**	**41,711**	**3,396**	**–4**	**45,103**	**1,476,947**
Transfer	–	–	–	–	–	–		–	–	–4	–	4	–	–
Payment of dividends	–	–	–	–	–	–		–	–	–5,803	–	–	–5,803	–5,803
Allocation to partners' account within liabilities	–	–	–	–	–123,480	–123,480		–	–123,480	–	–	–	–	–123,480
Currency conversion	–	–	–	–	–	–		–26,214	–26,214	–	–679	–	–679	–26,893
Other changes	–	–	–	–	404	404		–	404	–	–	–	–	404
Changes in consolidated group	–	–	–	–	–499	–499		499	–	–128	114	–	–14	–14
Group net income/loss for the year	–	–	–	27,570	223,869	251,439		–	251,439	–	–	10,188	10,188	261,627
As of June 30, 2017	**3,500**	**95,000**	**98,500**	**109,609**	**1,241,740**	**1,351,349**		**84,144**	**1,533,993**	**35,776**	**2,831**	**10,188**	**48,795**	**1,582,788**
Transfer	–	–	–	–	–	–		–	–	10,188	–	–10,188	–	–
Payment of dividends	–	–	–	–	–	–		–	–	–1,373	–	–	–1,373	–1,373
Allocation to partners' account within liabilities	–	–	–	–	–143,958	–143,958		–	–143,958	–	–	–1,466	–1,466	–145,424
Allocation to/withdrawal of reserves	–	–	–	75,000	–	75,000		–	75,000	–	–	–	–	75,000
Currency conversion	–	–	–	–	–	–		–19,887	–19,887	–	–307	–	–307	–20,194
Other changes	–	–	–	–	–83	–83		–	–83	–12,362	–44	–	–12,406	–12,489
Changes in consolidated group	–	–	–	–	–607	–607		–	–607	–	–	–	–	–607
Group net income/loss for the year	–	–	–	32,187	359,417	391,604		–	391,604	–	–	7,243	7,243	398,847
As of June 30, 2018	**3,500**	**95,000**	**98,500**	**216,796**	**1,456,507**	**1,673,305**		**64,257**	**1,836,062**	**32,229**	**2,480**	**5,777**	**40,486**	**1,876,548**

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Consolidated Cash Flow Statement

for fiscal year 2017/18

in € '000s		2017/18	2016/17
CONSOLIDATED NET INCOME FOR THE YEAR		**398,848**	**261,627**
+/–	Elimination of financial and investment result	36,839	29,180
+/–	Elimination of income tax expenses	102,277	61,323
	Consolidated net income before financial and investment result and income taxes	**537,964**	**352,130**
–/+	Income taxes paid/received	–75,832	–68,209
+/–	Elimination of write-downs/write-ups of fixed assets	155,704	137,945
–/+	Elimination of gain/loss from the disposal of tangible assets	–7,004	1,981
–/+	Increase/decrease in inventories and trade receivables	–257,980	–154,127
+/–	Increase/decrease in trade payables	45,093	88,382
+/–	Increase/decrease in accruals	41,326	20,298
+/–	Change in other assets and liabilities	–8,138	–1,261
+/–	Elimination of other non-cash expenses/income	2,668	42,227
=	**Cash inflow from operating activities**	**433,801**	**419,366**
–	Cash paid for investments in tangible assets	–294,102	–189,506
+	Cash received from the disposal of tangible assets	73,266	27,228
–	Cash paid for investments in intangible assets	–13,092	–8,235
+	Cash received from the disposal of intangible assets	908	252
=	*Subtotal cash outflow from investing activities (operating)*	*–233,020*	*–170,261*
–	Cash paid for investments in fixed financial assets	–28,289	–9,371
+	Cash received from the disposal of fixed financial assets	754	695
+/–	Cash paid/received from the acquisition of consolidated companies	–13,443	–3,316
–	Cash paid for investments in plan assets (CTA)	–	–50,000
+	Cash received from financial investments within short-term cash management	3,856	–
–	Cash paid for financial investments within short-term cash management	–50,000	–60,000
+	Dividends received	314	189
+	Interest received	6,163	6,890
=	*Subtotal cash outflow from investing activities (others)*	*–80,645*	*–114,913*
=	**Cash outflow from investing activities**	**–313,665**	**–285,174**
–	Cash paid to partners	–105,833	–84,042
–	Dividends paid to other partners	–1,373	–5,803
+	Cash received from the issuance of loans and other financial liabilities	5,117	7,849
–	Cash repayments of loans and other financial liabilities	–63,254	–26,113
–	Interest paid	–3,222	–3,660
=	**Cash outflow from financing activities**	**–168,565**	**–111,769**
CHANGE IN CASH AND CASH EQUIVALENTS		**–48,429**	**22,423**
+/–	Change in cash and cash equivalents due to exchange rate changes	–7,465	–6,719
+/–	Change in cash and cash equivalents due to consolidation activities	1,800	79
+	Cash and cash equivalents at the beginning of the fiscal year	624,042	608,259
=	**Cash and cash equivalents at the end of the fiscal year**	**569,948**	**624,042**
COMPOSITION OF CASH AND CASH EQUIVALENTS			
+	Cash	570,519	630,986
–	Liabilities to banks payable on demand	–571	–6,944
=	**Cash and cash equivalents at the end of the fiscal year**	**569,948**	**624,042**

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

Notes to the Consolidated Financial Statements

for fiscal year 2017/18

Principles and Methods

TRUMPF GmbH + Co. KG and Berthold Leibinger GmbH are listed in the Commercial Register at Stuttgart District Court under Entry HRA 201460 and HRB 200720. The head offices of both companies are located in Johann-Maus-Straße 2, 71254 Ditzingen, Germany.

The consolidated financial statements for the fiscal year 2017/18 have been prepared in accordance with sec. 264a HGB (German Commercial Code) and in line with sec. 290 et sequentes HGB. The accounting and valuation principles of the HGB for large corporations have been applied while taking into account the separate regulations for partnerships as well as the supplementary provisions of the articles of association of the parent companies. In accordance with sec. 298 (1) HGB in conjunction with sec. 244 HGB the consolidated financial statements have been prepared in euros (€). The consolidated income statement follows the total costs method.

To enhance the clarity of the consolidated financial statements, various items of the consolidated balance sheet and the consolidated income statement have been combined and are disclosed separately in the notes to the consolidated financial statements. The balance sheet was supplemented by the positions “inventories (before offsetting against payments on account received)”, “receivables” and “liabilities” in addition to those prescribed by law.

Accounting and Valuation

The financial statements of the companies included in the consolidated financial statements follow uniform accounting and valuation principles. In case adjustments to local accounts are necessary to ensure uniform accounting within the group, a “Handelsbilanz II” (balance sheet for consolidation purposes) is prepared.

Intangible and tangible assets are stated at acquisition or manufacturing costs, net of regular amortization or depreciation. Tangible assets are depreciated using the straight-line method.

For regular amortization and depreciation, the following useful lives are assumed: 3 to 5 years for software, 9 to 12 years for acquired customer bases, 3 to 9 years for technological know-how, 10 years for trademark rights, 25 to 50 years for buildings, 6 to 8 years for technical equipment and machinery, and 3 to 20 years for other equipment, factory and office equipment. The useful life of goodwill is assumed to be 5 years and is determined based on internal empirical data on the respective product life cycles.

Internally used machines are used for testing or training purposes as well as showroom and demo machines. They are stated in the assets and are amortized over 5 years. Machines that are leased to customers are also stated in the assets and are amortized over the term of the lease contract.

Financial assets are stated at acquisition costs or net realizable values as of the balance sheet date. The accounting and valuation principles of shares in associated enterprises are outlined in the section on consolidation principles.

Inventories of raw materials, consumables and supplies as well as merchandise are stated at the lower of costs or market values. Finished goods and work in progress are valued at manufacturing costs, which include direct material and production costs, appropriate material and production overhead costs as well as depreciation expenses attributable to the manufacturing process.

In case acquisition or manufacturing costs exceed the market value at the balance sheet date due to lower replacement prices / sales market prices, excess inventories or unsaleability, the book value of inventories is adjusted accordingly.

Payments on account received are deducted from inventories.

Receivables and other assets are stated at the lower of nominal values or net realizable values as of the balance sheet date. If the collectability of receivables is at risk, appropriate allowances are made. Receivables deemed uncollectible are written-down to full extent. The general credit risk is covered by lump-sum bad debt allowances on net receivables that are not subject to specific allowances.

Securities are stated at the lower of acquisition costs or net realizable values at the balance sheet date.

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Prepaid expenses comprise payments that were made prior to the balance sheet date but that constitute expenses for a certain period after that date. Debt discounts are capitalized and amortized over the scheduled term of the loans.

The **special items** include investment subsidies and grants for fixed assets. They are released over the economic life of the subsidized assets.

Accruals for pensions and similar obligations are calculated based on actuarial principles using the projected unit credit method based on Prof. Dr. Klaus Heubeck's 2005 G mortality tables. In accordance with the regulation in sec. 253 (1) HGB, the expected increase in salaries and pensions as well as the predicted employee turnover rate are taken into account in the actuarial calculation of the accruals. Accruals for pensions and similar obligations are discounted with the average market interest rate of the past ten fiscal years, based on an assumed residual term of 15 years. The interest rates are published by Deutsche Bundesbank (German Central Bank). The determination of the discount factor over the longer ten-year horizon compared to the seven-year horizon leads to a difference of k€ 46,522 (previous year k€ 37,611) as of 6/30/2018.

In fiscal year 2017/18 the calculation of pension obligations was based on the following parameters:

- Interest rate: 3.46 percent p.a. (previous year 3.85 percent p.a.)
- Increase of salaries and pensions: 3.0 percent p.a. (previous year 3.0 percent p.a.)
- Pension trend: 2.0 percent p.a. (previous year 2.0 percent p.a.)

In fiscal year 2017/18 the accruals for pensions and similar obligations were offset against assets which cannot be accessed by all the other remaining creditors. The fair value of these assets was derived from the market values.

Other accruals cover all known risks, uncertain liabilities and contingent losses on pending transactions as of the balance sheet date. They are recognized at the settlement value which is derived from prudent commercial judgment. Accruals with a remaining term of more than one year have been discounted in accordance with sec. 253 (2) sentence 1 HGB. Economic hedging relationships between derivative financial instruments and the underlying transactions are accounted for by creating valuation units. Therefore, no provisions for onerous contracts are recorded for financial instruments with a negative fair value.

Accruals for obligations relating to phased retirement programs are calculated according to actuarial principles based on an interest rate of 1.21 percent p.a. (previous year 1.62 percent p.a.). These accruals were offset against assets which will be used exclusively for the settlement of these obligations and which cannot be accessed by all other remaining creditors. The fair value of these assets was derived from the market values.

Accruals for obligations relating to the "TRUMPF Familien- und Weiterbildungskonto" were offset against assets that will only be used for the fulfillment of these obligations and that cannot be accessed by all other remaining creditors. The fair value of these assets was derived from the market values.

Liabilities are reported at the repayment amount.

Deferred income includes payments that were made prior to the balance sheet date but constitute income for a certain period after that date.

Deferred taxes result from temporary and quasi-permanent differences between the commercial amounts of assets, liabilities, accrued and deferred items and their corresponding tax values, or from tax loss carry forwards. To calculate the deferred tax amount, the respective undiscounted tax burden or relief is valued based on the company-specific tax rate that is expected to prevail when the differences will be settled. Deferred tax assets and liabilities are shown net. If a surplus remains on the assets side as of the balance sheet date, the option for recognition in accordance with sec. 274 (1) sentence 2 HGB is not exercised.

Ownership of Shares and Companies included in Consolidation

Professor Dr. techn. Dr.-Ing. h. c. Berthold Leibinger, his family and Berthold Leibinger Stiftung GmbH hold all shares, directly and indirectly, in TRUMPF GmbH + Co. KG and Berthold Leibinger GmbH, Ditzingen (Germany). Together, these two companies exercise joint control

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over all domestic and foreign subsidiaries of the TRUMPF Group. The consolidation process treats these two companies as joint parent companies.

In addition to the parent companies, the basis of consolidation group consists of 27 (previous year 27) German subsidiaries and 57 (previous year 57) subsidiaries outside of Germany. In the fiscal year 2017/18, three subsidiaries in Switzerland were merged with a fourth company which has reduced the amount of fully consolidated companies in Switzerland by three. Additionally, three companies have been included for the first time in the consolidated financial statements according to the principles of full consolidation in the fiscal year 2017/18. The initial consolidation did not have a significant impact on the financial position and performance of the group, i.e. the comparability with the previous year is still given.

17 (previous year 15) subsidiaries as well as 4 (previous year 3) associated enterprises are not included in the consolidated financial statements for reasons of immateriality. Their combined net income and revenues only amount to approximately 1 percent of the consolidated net income and revenue, respectively. Consequently, they are considered as irrelevant for the fair presentation of the financial position of the Group.

Consolidation Principles

The capital consolidation is carried out with the revaluation method in accordance with sec. 301 (1) HGB. When using this method, the equity of the subsidiaries is stated at an amount that approximates the net realizable value of those assets and liabilities that have to be included in the consolidated financial statement.

A residual debit difference is shown as goodwill on the assets side and is depreciated based on the expected useful life.

The consolidation measures of sec. 300 to 305 HGB may result in differences between the accounting and the tax base of assets, liabilities as well as of accrued or deferred items. In these cases, the prospective tax relief or burden is recognized in the balance sheet as deferred tax asset/liability provided that these differences are expected to reverse in the future. The calculation of deferred taxes is based on the individual tax rate expected for the date of settlement of the differences. The tax rates range from 10 percent to 34 percent. Deferred tax liabilities are disclosed net of deferred tax assets. Deferred taxes from consolidation measures are combined with the deferred taxes resulting from the application of sec. 274 HGB to create one item on the balance sheet.

Any intercompany profits arising from intercompany sales or services are eliminated with effect on income.

Accounts receivable and accounts payable between companies included in the consolidation are offset against each other. Any resulting foreign exchange related difference is not included in the profit and loss account and recognized in the item “equity difference from foreign currency translation” instead. Revenues from intercompany sales and intercompany income are offset against the corresponding expenses or reclassified as changes in inventory or other own work capitalized.

Foreign Currency Translation

In the individual financial statements, foreign currency receivables and liabilities are generally translated at the average spot exchange rate. In case of residual terms of more than one year, the realization principle (sec. 298 (1) HGB in conjunction with sec. 252 (1) No. 4 clause 2 HGB) and the historical cost principle (sec. 298 (1) HGB in conjunction with sec. 253 (1) sentence 1 HGB) are considered.

Bank balances denoted in foreign currency are translated at the average spot exchange rate prevailing at the balance sheet date. Acquisition costs for shares in foreign subsidiaries or participations – except for other participations – are valued at historical rates. Figures disclosed in the notes to the financial statements are translated at the average spot exchange rate on the balance sheet date.

In the consolidated financial statements, the balance sheet items of subsidiaries that do not use euros as reporting currency are translated in accordance with sec. 308a HGB with the modified current-rate method. Hence, items on the asset and the liability side of balance sheets that are

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denominated in foreign currencies are translated at the average spot exchange rate prevailing at the balance sheet date. This practice does not apply to the equity position for which historical rates are used. The items in the profit and loss accounts of subsidiaries that do not use euros as reporting currency are translated at the average exchange rate for the fiscal year. Any resulting differences are shown within group equity below the reserves as "equity difference from foreign currency translation" in accordance with sec. 308a HGB.

Explanations to the Balance Sheet

The numbers stated in the following paragraphs refer to the corresponding items in the consolidated balance sheet or consolidated profit and loss account.

1. Fixed assets

The development of the consolidated fixed assets is presented separately in the statement of fixed assets changes. Differences resulting from currency translation have been taken into account in the acquisition or manufacturing costs as well as in the cumulated depreciation and amortization.

2. Inventories (after offsetting against payments on account received)

in € '000s	6/30/2018	6/30/2017
Raw materials, consumables and supplies	247,254	187,990
Work in progress	205,179	177,026
Finished goods and merchandise	309,341	252,666
Payments on account	11,304	11,035
Inventories	**773,078**	**628,717**
Payments on account received	–178,609	–157,708
Inventories (after offsetting against payments on account received)	**594,469**	**471,009**

3. Receivables

in € '000s	6/30/2018	Remaining term		6/30/2017	Remaining term	
		Up to 1 year	Over 1 year		Up to 1 year	Over 1 year
Trade receivables	**779,358**	**771,540**	**7,818**	**655,405**	**650,722**	**4,683**
of which to third parties	*776,909*	*769,091*	*7,818*	*650,949*	*646,266*	*4,683*
of which to affiliated companies that are not fully consolidated	*2,449*	*2,449*	*0*	*4,456*	*4,456*	*0*
Other receivables to affiliated companies that are not fully consolidated	**13,866**	**9,108**	**4,758**	**1,220**	**420**	**800**
Total receivables	**793,224**	**780,648**	**12,576**	**656,625**	**651,142**	**5,483**

In deviation from the previous year, trade receivables to affiliated companies are included in trade receivables. The prior year values were adjusted accordingly.

4. Other assets

in € '000s	6/30/2018	6/30/2017
Medium-term financial assets	56,143	60,000
Other assets	104,700	86,824
Total other assets	**160,843**	**146,824**
Of which with a residual term of more than one year	*19,828*	*6,307*

Other assets primarily comprise of tax receivables resulting from income taxes and VAT. The medium-term financial assets comprise all financial investments with a remaining maturity of more than three months.

5. Cash and cash equivalents as well as securities

in € '000s	6/30/2018	6/30/2017
Securities in current assets	49,508	20
Cash in hand, bank balances and cheques (liquid funds)	570,519	630,986
	620,027	**631,006**

Cash and cash equivalents include short-term promissory notes and short-term financial investments with a remaining maturity of less than three months.

Securities contain units in an investment fund in form of a special securities fund acquired in the financial year 2017/18. The special securities fund is held as short to medium-term liquidity investment and therefore shown within the securities in current assets. The shareholding of the fund amounts to 100%.

The special securities fund reported under securities in current assets invests in pension funds, investment funds and bank deposits.

in € '000s	Book value 6/30/2018	Fair value 6/30/2018	Distributions 2017/18	Impairment 2017/18
Special securities fund with short to medium-term investment strategy	49,472	49,472	0	528

6. Prepaid expenses

Other prepaid expenses include vacation allowances, insurance premiums, maintenance agreements, rent, dues and other prepaid costs caused by the divergent fiscal year.

7. Deferred tax assets

Deferred tax assets and deferred tax liabilities are shown net. The deferred tax assets recognized on the balance sheet arise from consolidation activities. The deferred tax liabilities are based on divergent values in the commercial and the tax financial statement and are mainly attributable to intangible assets, tangible assets and provisions.

in € '000s	6/30/2018	6/30/2017	Change
Deferred tax assets	40,708	34,774	+5,934
Deferred tax liabilities	–19,662	–21,090	+1,428
Surplus	**21,046**	**13,684**	

8. Equity

in € '000s	6/30/2018	6/30/2017
Fixed capital and subscribed capital	98,500	98,500
Retained earnings	1,673,305	1,351,349
Equity difference from foreign currency translation	64,257	84,144
Minority interests	40,486	48,795
	1,876,548	**1,582,788**

The fixed capital and subscribed capital position corresponds to the compulsory contributions of the limited partners of TRUMPF GmbH + Co. KG and the subscribed capital of the general partner. The compulsory contributions of the limited partners and the risk capital are identical.

The result allocation for the fiscal year 2017/18 was made in accordance with the provisions of the articles of association and has been considered in the preparation of the consolidated financial statements.

Other revenue reserves comprise of profits and losses generated by the general partner, the domestic and foreign subsidiaries as well as effects of various consolidation measures.

Minority interests mainly relate to investments in Jiangsu Jinfangyuan CNC Machine Company Limited, TRUMPF Hüttinger Sp. z o. o., TRUMPF SISMA S.r.l. and TRUMPF Sachsen GmbH. The result allocable to minority interests comprises profit shares of k€ 8,164 (prior year k€ 10,435) and loss shares of k€ 921 (previous year k€ 247). The development of the Group's equity is shown separately in the statement of changes in group equity.

9. Special items

The special items contain investment grants and allowances.

10. Accruals for pensions and similar obligations

in € '000s	6/30/2018	6/30/2017
Accruals for pensions and similar obligations (settlement value prior to offsetting)	281,132	247,157
Contractual Trust Agreement (offset amount)	–49,347	–50,000
	231,785	**197,157**

The fair value of the offset cover assets corresponds to the amortized costs.

11. Other accruals

The fair value of the plan assets of the accruals for phased retirement programs amounts to €6,825k (previous year: €4,949k) and corresponds to the amortized costs. The repayment amount of the offset accruals for phased retirement programs amounts to k€ 6,514 (previous year: k€ 5,904).

The fair value of the plan assets of accruals for obligations relating to the "TRUMPF Familien- und Weiterbildungskonto" is k€ 9,943 (previous year k€ 5,508) and equals the amortized cost. The repayment amount of the offset debts is also k€ 9,943 (previous year k€ 5,508).

Due to immateriality the offsetting of expenses and income was waived in each case.

in € '000s	6/30/2018	6/30/2017
Tax accruals	54,362	32,127
Other accruals	350,322	297,592
	404,684	**329,719**

Other accruals mainly relate to obligations in the personnel and welfare area, warranty obligations, outstanding purchase invoices and other contingent liabilities.

12. Liabilities

		Remaining term				Remaining term	
in € '000s	6/30/2018 Total	Up to 1 year	1 to 5 years	Over 5 years	6/30/2017 Total	Up to 1 year	Over 1 year
Trade payables	**268,813**	**264,496**	**4,167**	**150**	**225,528**	**220,512**	**5,016**
of which to third parties	267,665	263,348	4,167	150	224,247	219,231	5,016
of which to affiliated companies that are not fully consolidated	1,148	1,148	–	–	1,281	1,281	–
Financial liabilities	**108,290**	**48,166**	**46,466**	**13,658**	**175,553**	**102,152**	**73,401**
of which to banks	41,220	11,815	15,747	13,658	67,158	26,180	40,978
of which other financial liabilities	67,070	36,351	30,719	–	108,395	75,972	32,423
Liabilities to partners	**413,592**	**122,428**	**291,164**	**–**	**438,489**	**104,996**	**333,493**
Other liabilities	**86,910**	**85,037**	**1,646**	**227**	**78,030**	**77,165**	**865**
of which taxes	43,824	43,824	–	–	44,344	44,344	–
of which relating to social security	5,536	5,536	–	–	6,864	6,864	–
of which others	37,549	35,676	1,646	227	26,822	25,957	865
	877,605	**520,127**	**343,443**	**14,035**	**917,600**	**504,825**	**412,775**

In deviation from the previous year, trade payables to affiliated companies are included in trade payables. The prior year values were adjusted accordingly.

Trade payables are subject to customary retention of title.

Financial liabilities comprise of all interest-bearing liabilities against third parties that were entered for financing purposes. Other financial liabilities consist of deposits, loans and a private placement on the US stock market of k€ 16,736 (previous year k€ 37,657) including accrued interest.

Of the liabilities to banks, a total of k€ 27,683 (previous year k€ 35,448) are secured by mortgage.

13. Deferred income

This item mainly includes the deferral of revenues or payments already received for maintenance services, training or leasing contracts, which amount to revenue for a certain length of time after the balance sheet date.

Explanations to the Profit and Loss Account

14. Sales

20 percent (previous year 20 percent) of total sales were generated domestically and 80 percent (previous year 80 percent) abroad. For sales per business division please refer to the group management report.

in € '000s	2017/18	2016/17
National Sales	719,172	622,330
International Sales	2,846,391	2,489,006
	3,565,563	**3,111,336**

15. Changes in inventories and own work capitalized

in € '000s	2017/18	2016/17
Changes in inventories of finished goods and work in progress	84,046	12,323
Own work capitalized	96,658	35,078
	180,704	**47,401**

16. Other operating income

Other operating income mainly relates to exchange rate gains, income from the release of accruals, income from the disposal of assets and income from the reversal of value adjustments.

Income from foreign currency translation amounts to k€ 74,290 (previous year k€ 58,005). Other operating income totaling k€ 40,342 is allocable to other fiscal years (previous year k€ 17,271) and is mostly related to income from the reversal of accruals and income from plant disposals.

17. Cost of materials

in € '000s	2017/18	2016/17
Cost of raw materials, consumables and supplies and of purchased goods	1,482,040	1,270,536
Cost of purchased services	81,068	61,025
	1,563,108	**1,331,561**

18. Personnel expenses

in € '000s	2017/18	2016/17
Wages and salaries	837,632	749,280
Social security and other welfare costs	141,931	126,543
Pension costs	15,264	20,714
	994,827	**896,537**

Personnel expenses also contain the remuneration and pension expenses of our shareholders.

The previous year contains extraordinary expenses resulting from restructuring activities (k€ 8,767).

19. Other operating expenses

Other operating expenses mainly contain exchange rate losses, third party services, consulting services, administrative and selling expenses including sales representative commissions and freight out, travel expenses, maintenance costs, advertising expenses, rent and lease expenses as well as additions to accruals.

Expenses from foreign currency translation amount to k€ 74,013 (previous year k€ 61,380).

The previous year contains extraordinary expenses resulting from restructuring activities (k€ 6,115).

20. Financial and investment result

in € '000s	2017/18	2016/17
Income from securities and loans	25	28
Income from equity investments	314	189
Other interests and similar income	6,245	7,386
of which from affiliated companies that are not fully consolidated	*170*	*1*
Depreciation of financial assets and current securities	–1,076	–1,670
Interests and similar expenses	–42,347	–35,113
of which from discounting of accruals	–28,393	–20,924
	–36,839	**–29,180**

21. Taxes on income

Taxes on income include the effective and deferred trade tax and corporate income tax payable by TRUMPF GmbH + Co. KG, the general partner and the domestic and foreign subsidiaries. Effective income taxes amount to k€ 109,190 (previous year k€ 88,075) for the reporting year.

The deferred tax income of k€ 6,913 recognized in the current fiscal year (previous year k€ 26,752) can be split into two components: income resulting from differences between the commercial and the tax balance sheet (k€ –93, previous year k€ 5,250) as well as income from consolidation measures (k€ 7,006, previous year k€ 21,502).

Shareholders' taxes were presented, for information purposes only, after the figure for the consolidated net income for the year according to sec. 264c (3) HGB. They are not included in the calculation of deferred taxes.

Notes to the Cash Flow Statement

22. Composition of cash and cash equivalents

Cash and cash equivalents includes cash (k€ 570,519) aswell liabilities to banks that are repayable on demand (k€ 571). Short term cash equivalents can be converted to cash within a maximum of three months. The liabilities to banks that are repayable on demand refer to bank overdrafts.

Other Disclosures

23. Contingent liabilities

in € '000s	6/30/2018
Bills of exchange	12,311
Warranty agreements	52,541
Guarantees	39,485
	104,337

With regard of the sound financial position of the companies for which guarantees and warranty agreements were provided, the risk that the contingent liabilities will become effective is considered to be low.

24. Derivative financial instruments and valuation units

	Nominal amount	Fair value	Book value	Balance sheet item
Foreign exchange related transactions	k€ 713,418	k€ 10,347	–	–
	kUSD 3,000	kUSD 11	–	–
Other transactions	k€ 16,736	k€ 292	–	–

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Foreign exchange related transactions constitute foreign exchange forwards and swaps in the currency pairs EUR/JPY, EUR/KRW, EUR/USD, EUR/GBP, EUR/CHF, EUR/PLN, EUR/CZK, EUR/CNY and USD/GBP. Other transactions include combined interest and foreign exchange hedging transactions in the currency pair EUR/USD.

Adequate provisions have been made for hedging transactions with a negative net realizable value on the balance sheet date that are not included in a valuation unit. The valuation is conducted in accordance with generally accepted valuation methods, e.g. present value or option pricing models.

The following valuation units have been generated:

Underlying transaction / Hedging instrument	Risk / Type of valuation unit	Included amounts	Hedged amount
Third party sales / Foreign exchange transactions	Foreign exchange risk / Macro hedge	k€ 141,006	kJPY 16,500,000
Third party sales / Foreign exchange transactions	Foreign exchange risk / Macro hedge	k€ 80,500	kKRW 104,723,215
Third party sales / Trade payables / Foreign exchange transactions	Foreign exchange risk / Macro hedge	k€ 356,776	kUSD 433,800
Third party sales / Foreign exchange transactions	Foreign exchange risk / Macro hedge	k€ 25,000	kGBP 22,083
Trade payables / Foreign exchange transactions	Foreign exchange risk / Macro hedge	k€ 40,892	kCHF 48,000
Trade payables / Foreign exchange transactions	Foreign exchange risk / Macro hedge	k€ 27,605	kPLN 120,000
Trade payables / Foreign exchange transactions	Foreign exchange risk / Macro hedge	k€ 7,965	kCZK 202,749
Third party sales / Foreign exchange transactions	Foreign exchange risk / Macro hedge	k€ 33,673	kCNY 264,820
Third party sales / Foreign exchange transactions	Foreign exchange risk / Macro hedge	kUSD 3,000	kGBP 2,269
Financial liabilities / Combined interest and foreign exchange hedges	Interest and foreign exchange risk / Micro hedge	k€ 16,736	kUSD 20,000

In respect of the existing hedges on the balance sheet date the following applies in accordance with sec. 254 HGB:

Economic hedging relationships between derivative financial instruments and underlying transactions are reflected in the balance sheet by recognizing valuation units. Due to the consistency of all significant value-determining components, the opposite changes in value from the underlying and the hedged item completely offset one another within the hedging period. The effectiveness of the hedges is monitored on a regular basis within the existing risk management. When necessary, the hedging strategy is modified immediately. Therefore, prospective and retrospective effectiveness can be assumed for an effective hedging relationship.

To hedge foreign exchange risks arising from highly probably forecast transactions, forward contracts are entered into the expected net cash flow in terms of duration, nominal value and currency (macro hedges). The highly probable future cash flows from sales and sourcing transactions are derived from the corporate planning process. The verification of former planning results has shown that the forecasted transactions are indeed highly probable.

25. Off-balance-sheet transactions

At the balance sheet date off-balance sheet transaction relating to Operate Lease contracts exist. These contracts concern vehicles and office equipment and were concluded for cost-efficiency reasons. The sum of the lease payment during fiscal year 2017/18 amounts to k€ 12,545.

26. Other financial commitments

in € ’000s	6/30/2018
Rent, lease and leasing agreements as well as other commitments	69,200
Purchase obligations relating to capital expenditures	53,103
	122,303
The amounts are due as follows: within 1 year	64,763
2 to 4 years	35,557
5 years and thereafter	21,983
	122,303

In addition to the financial commitments listed above, obligations from master agreements and regular purchase commitments on a scale customary for the company exist.

27. Audit fees

The total fee charged by the independent auditor for the fiscal year amounts to k€ 2,037 (prior year k€ 1,650) and can be broken down as follows:

in € '000s	2017/18	2016/17
Audit of financial statements	621	577
Tax consulting services	817	992
Other services	599	81

28. Employees

Annual average headcount:

		2017/18	2016/17
Germany	Employees	6,194	5,543
	Trainees	325	325
Abroad	Employees	6,206	5,634
	Trainees	126	134
		12,851	**11,636**

29. Management

The persons stated below are responsible for the management of TRUMPF group. Their remuneration for managing the parent company and its subsidiaries amounts to k€ 15,176 (prior year k€ 9,707).

Pension commitments of k€ 17,081 (prior year k€ 16,987) were granted to former members of the management. In fiscal year 2017/18, former general managers or their surviving dependents have received benefits amounting to k€ 1,388 (prior year k€ 1,376).

30. Exemption in accordance with HGB

The following corporations have made use of the exemption from sec. 264 (3) HGB: AXOOM GmbH, TRUMPF Werkzeugmaschinen Beteiligungs-GmbH, TRUMPF Werkzeugmaschinen Deutschland Vertrieb + Service Beteiligungs-GmbH, TRUMPF Werkzeugmaschinen Teningen GmbH, TRUMPF International Beteiligungs-GmbH, TRUMPF Laser- und Systemtechnik GmbH, TRUMPF Hüttinger Verwaltung GmbH, TRUMPF Laser GmbH, Celtia Verwaltungs-GmbH, TRUMPF Lasertechnik GmbH, TRUMPF Finance GmbH, Berthold Leibinger Immobilien GmbH, TRUMPF Kapitalbeteiligungen GmbH, TRUMPF Sachsen GmbH, TRUMPF Scientific Lasers Verwaltungsgesellschaft mbH, INGENERIC GmbH, TRUMPF Lasersystems for Semiconductor Manufacturing GmbH.

The following commercial partnerships within the meaning of sec. 264a (1) HGB made use of the exemption from the preparation of annual financial statements provided for in sec. 264b HGB in accordance with the commercial law provisions applicable to corporations: TRUMPF GmbH + Co. KG, TRUMPF Werkzeugmaschinen GmbH + Co. KG, TRUMPF Hüttinger GmbH + Co. KG, TRUMPF Immobilien GmbH + Co. KG, TRUMPF Werkzeugmaschinen Deutschland Vertrieb + Service GmbH + Co. KG, TRUMPF Scientific Lasers GmbH + Co. KG, TRUMPF Grundstücksverwaltungsgesellschaft mbH + Co. Vermietungs KG, TRUMPF VSZ Grundstücksverwaltungsgesellschaft mbH + Co. KG, Hüttinger Grundstücks-Vermietungsgesellschaft mbH + Co. Objekt Freiburg KG.

31. Supervisory Board / Administrative Board

Sec. 1 (1) no. 2 of the MitbestG (German Codetermination Law) provides that a company which exceeds a certain size classification must appoint a supervisory board. In accordance with sec. 7 (1) no. 1 MitbestG, Berthold Leibinger GmbH has met this requirement effective since fiscal year 1998/99. The Supervisory Board has twelve members.

The Supervisory Board total remuneration amounts to k€ 129 (prior year k€ 131).

32. Related party transactions

All transactions with affiliated companies and persons were at arm's length.

33. Appropriation of earnings

The management of Berthold Leibinger GmbH proposes that the result of fiscal year 2017/18 be carried forward. The profit of TRUMPF GmbH + Co. KG is appropriated according to the partnership agreements.

34. Supplementary report

No significant events occurred after the end of the fiscal year that had any material effect on the group's financial situation, net assets or operating results.

Ditzingen, September 17, 2018

TRUMPF GmbH + Co. KG
Berthold Leibinger GmbH

Dr. phil. Nicola Leibinger-Kammüller, President and Chairwoman
Dr.-Ing. E. h. Peter Leibinger, Vice Chairman
Dr.-Ing. Mathias Kammüller
Dr. rer. pol. Lars Grünert
Dr.-Ing. Heinz-Jürgen Prokop
Dr.-Ing. Christian Schmitz

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Development of the Consolidated Fixed Assets

for fiscal year 2017/18

in € '000s	Acquisition costs							Accumulated depreciation								Book value	
	07/01/2017	Changes attributable to currency exchange effects	Changes in the group of consolidated companies	Additions	Disposals	Transfers	**06/30/2018**	07/01/2017	Changes attributable to currency exchange effects	Changes in the group of consolidated companies	Additions	Disposals	Transfers	Attribution	**06/30/2018**	**06/30/2018**	06/30/2017
INTANGIBLE ASSETS																	
Acquired concessions, industrial and similar rights, licenses	157,840	–2,054	49	7,195	–8,629	3,332	157,733	–103,740	1,824	–15	–14,968	7,721	–	–	–109,178	48,555	54,100
Goodwill	91,952	–485	–	5,211	–	–	96,678	–65,005	171	–	–17,860	–	–	–	–82,694	13,984	26,947
Payments on account	2,725	–	–	686	–	–2,517	894	–	–	–	–	–	–	–	–	894	2,725
	252,517	**–2,539**	**49**	**13,092**	**–8,629**	**815**	**255,305**	**–168,745**	**1,995**	**–15**	**–32,828**	**7,721**	–	–	**–191,872**	**63,433**	**83,772**
TANGIBLE ASSETS																	
Land and buildings	928,388	–10,037	–	53,790	–31,517	39,087	979,711	–308,380	4,719	–	–26,907	14,062	–1,060	460	–317,106	662,605	620,008
Technical equipment and machines	435,271	–5,601	1,168	110,897	–72,703	–5,472	463,560	–236,725	2,475	–	–55,266	30,946	10,107	–	–248,463	215,097	198,546
Other equipment, factory and office equipment	392,693	–3,161	241	67,048	–18,998	28,683	466,506	–267,093	2,220	–60	–40,703	12,101	–9,047	–	–302,582	163,924	125,600
Payments on account and assets under construction	85,500	–159	–	62,367	–154	–63,113	84,441	–198	–1	–	–	–	–	–	–199	84,242	85,302
	1,841,852	**–18,958**	**1,409**	**294,102**	**–123,372**	**–815**	**1,994,218**	**–812,396**	**9,413**	**–60**	**–122,876**	**57,109**	**–**	**460**	**–868,350**	**1,125,868**	**1,029,456**
FINANCIAL ASSETS																	
Shares in affiliated companies	21,408	–3	–4,840	37,004	–25	–	53,544	–1,650	3	–	–	–	–	–	–1,647	51,897	19,758
Shares in associated companies	1,930	1	–	610	–711	–	1,830	–	–	–	–	–	–	–	–	1,830	1,930
Participations	2,304	–1	–	8	–	–	2,311	–2,304	–	–	–	–	–	–	–2,304	7	–
Long-term investments	2,227	–58	–	–	–17	–	2,152	–1,496	26	–	–475	–	–	–	–1,945	207	731
Other loans	1,643	2	–	86	–1	–	1,730	–	–	–	–	–	–	–	–	1,730	1,643
	29,512	**–59**	**–4,840**	**37,708**	**–754**	**–**	**61,567**	**–5,450**	**29**	**–**	**–475**	**–**	**–**	**–**	**–5,896**	**55,671**	**24,062**
	2,123,881	**–21,556**	**–3,382**	**344,902**	**–132,755**	**–**	**2,311,090**	**–986,591**	**11,437**	**–75**	**–156,179**	**64,830**	**–**	**460**	**–1,066,118**	**1,244,972**	**1,137,290**

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

List of Shareholdings

as of June 30, 2018

Company	Share of ownership TRUMPF GmbH + Co. KG	
	direct	indirect
Fully consolidated subsidiaries		
TRUMPF Werkzeugmaschinen Beteiligungs-GmbH, Ditzingen	100	
TRUMPF Werkzeugmaschinen GmbH + Co. KG, Ditzingen[3]	100	
TRUMPF Werkzeugmaschinen Deutschland Vertrieb + Service GmbH + Co. KG, Ditzingen[3]		100
TRUMPF International Beteiligungs-GmbH, Ditzingen	100	
TRUMPF Werkzeugmaschinen Deutschland Vertrieb + Service Beteiligungs-GmbH, Ditzingen		100
TRUMPF Laser- und Systemtechnik GmbH, Ditzingen		100
TRUMPF Hüttinger Verwaltung GmbH, Freiburg i. Br.		90
TRUMPF Hüttinger GmbH + Co. KG, Freiburg i. Br.[3]		90
TRUMPF Lasersystems for Semiconductor Manufacturing GmbH, Ditzingen		100
TRUMPF Sachsen GmbH, Neukirch		97.2
TRUMPF Laser GmbH, Schramberg		100
TRUMPF Grundstücksverwaltungsgesellschaft mbH + Co. Vermietungs KG, Mainz[2]	100	
Celtia Verwaltungs-GmbH, Reutlingen		100
TRUMPF Financial Services GmbH, Ditzingen	100	
TRUMPF Lasertechnik GmbH, Ditzingen	100	
TRUMPF Finance GmbH, Ditzingen	100	
TRUMPF Med Beteiligungen GmbH, Ditzingen[1]	100	
TRUMPF VSZ Grundstücksverwaltungsgesellschaft mbH + Co. KG Mainz[2]	94	
Berthold Leibinger Immobilien GmbH, Ditzingen	100	
TRUMPF Immobilien GmbH + Co. KG, Ditzingen[3]	100	
Hüttinger Grundstücks-Vermietungsgesellschaft mbH + Co. Objekt Freiburg KG, Pullach i. Isartal[2]		84.6
TRUMPF Kapitalbeteiligungen GmbH, Ditzingen		100
TRUMPF Scientific Lasers Verwaltungs-GmbH, Unterföhring		80
TRUMPF Scientific Lasers GmbH + Co. KG, Unterföhring[3]		80
INGENERIC GmbH, Aachen		80
TRUMPF Werkzeugmaschinen Teningen GmbH, Teningen		100
AXOOM GmbH, Karlsruhe	100	
TRUMPF Schweiz AG, Grüsch, Switzerland (anciently TRUMPF Maschinen Grüsch AG)		100
TRUMPF Finance (Schweiz) AG, Baar, Switzerland	100	
TRUMPF Inc., Farmington, Connecticut, USA		100
TRUMPF Huettinger Inc., Santa Clara, California, USA		90
Farmington Aviation Inc., Farmington, CT, USA		100
TRUMPF Photonics, Inc., Cranbury, New Jersey, USA		100
SPI Lasers LLC, Santa Clara, California, USA		100
Metamation Inc., Reno, Nevada, USA		51
TRUMPF Limited, Luton, United Kingdom		100
SPI Lasers plc, Southampton, United Kingdom		100
SPI Lasers UK Limited, Southampton, United Kingdom		100
TRUMPF Corporation, Yokohama, Japan		100
TRUMPF Huettinger K.K., Yokohama, Japan		90
FA Service Corporation, Yokohama, Japan		100
TRUMPF S.A.S., Paris, France		100
TRUMPF Machines S.A.R.L., Haguenau, France		100
TRUMPF Máquinas Ind. E. Com. Ltda., Sao Paulo, Brazil		100
AXOOM Solutions US LLC, State of Delaware, USA		100
TRUMPF maskin ab, Alingsas, Sweden		100
TRUMPF Maquinaria S.A., Madrid, Spain		100
TPT Máquinas-Ferramentas e Laser, Unipessoal, Lda, Porto Salvo, Portugal		100
TRUMPF Maschinen Austria GmbH, Pasching, Austria		100
TRUMPF Maschinen Austria GmbH & Co. KG, Pasching, Austria[3]		100
TRUMPF S.r.l., Buccinasco (Milan), Italy		100
TRUMPF Macchine Italia S.r.l., Lonigo (VI), Italy		100
TRUMPF SISMA S.r.l., Piovene Rocchelle (VI), Italy		55
TRUMPF Pte Ltd., Singapore, Singapore		100
TRUMPF Korea Co., Ltd., Seoul, South Korea		100
TRUMPF Malaysia Sdn Bhd, Kuala Lumpur, Malaysia		100
SPI Lasers Korea Ltd., Seoul, South Korea		100
TRUMPF (India) Private Limited, Pune, India		100
India Metamation Software Pvt. Ltd, Chennai, India		51
TRUMPF Praha spol. s.r.o., Prague, Czech Republic		100
TRUMPF Strojírenská výroba CZ s.r.o., Liberec, Czech Republic		100
TRUMPF Liberec, spol. s.r.o., Liberec, Czech Republic		100

Company	Share of ownership TRUMPF GmbH + Co. KG	
	direct	indirect
TRUMPF Polska Sp. z o.o. Sp. k., Warsaw, Poland[3]		100
TRUMPF Polska Sp. z o.o., Warsaw, Poland		100
TRUMPF Hüttinger Sp. z o.o., Zielonka, Poland		78.75
TRUMPF Hungary Kft, Budapest, Hungary		100
TRUMPF Bulgaria Ltd., Sofia, Bulgaria		100
TRUMPF Laser + Machinery S.R.L., Bucharest, Romania		100
TRUMPF Sheet Metal Products (Taicang) Co., Ltd., Taicang, China		100
TRUMPF (China) Co., Ltd., Taicang, China		100
TRUMPF Metal Products (Dongguan) Co., Ltd., Dongguan, China		100
TRUMPF HÜTTINGER Electronics (Shanghai) Co., Ltd.., Shanghai, China		90
SPI Lasers (Shanghai) Co. Ltd., Shanghai, China		100
Jiangsu Jinfangyuan CNC Machine Co., Ltd., Jiangsu Province, China		72.236
TRUMPF Technology (Shanghai) Co., Ltd., Shanghai, China		100
TRUMPF Mexico S. de R.L. de C.V., Apodaca, Mexico		100
TRUMPF Mexico Services S. de R.L. de C.V., Apodaca, Mexico		100
TRUMPF Slovakia, s.r.o., Kosice, Slovakia		100
TRUMPF Canada Inc., Mississauga, Ontario, Canada		100
TRUMPF Nederland B.V., Hengelo, Netherlands		100
TRUMPF OOO, Moscow, Russia		100
TRUMPF Taiwan Industries Co., Ltd., Gueishan Shiang, Taoyuan County, Taiwan		100
PT. TRUMPF Indonesia, Jakarta, Indonesia		100
TRUMPF Ltd., Bangkok, Thailand		100
Companies not included in the consolidated financial statement		
XETICS GmbH, Stuttgart		100
JT Optical Engine Verwaltungs-GmbH, Jena, Germany[1]		50
Findos SC Investor Fund II GmbH & Co. KG, Munich		24.995
AXOOM Solutions GmbH, Karlsruhe		100
TRUMPF Venture GmbH, Ditzingen		100
FG4 Beteiligungs-GbR, Ditzingen		25
Amphos GmbH, Herzogenrath		100

Company	Share of ownership TRUMPF GmbH + Co. KG	
	direct	indirect
Q.ant GmbH, Stuttgart		100
Toref Technica Co., Ltd., Aichi, Japan		25
Latech KK, Sagamihara, Japan		100
BESPOON SAS, Le Bourget du Lac, France		60
c-labs Corporation, Kent County, Delaware, USA		100
Auroma Technologies Co. Dba Access Laser Company, Everett, Washington, USA		85
ACCESS LASER (SHENZHEN) CO.,LTD, Shenzhen, China		100
SHENZHEN EVERBRITE CD.,LTD, Shenzhen, China		100
TRUMPF Engineering Services Italy S.r.l., Orbassano/ Turin, Italy		75
Bruma Machinehandel B.V., Spankeren, Netherlands		100
TRUMPF Philippines Inc., Manila, Philippines		100
TRUMPF VIETNAM COMPANY LIMITED, Ho Chi Minh City, Vietnam		100
TRUMPF Makina Sanayii A.Ş., Istanbul, Turkey		100
c2go inprocess solutions GmbH, Berlin[1]		100

[1] In liquidation.
[2] Companies are consolidated as, from an economic standpoint, the opportunities and risks accrue to the parent company.
[3] Entities whose unlimited liability partners are the joint parent companies or another entity that is included in the group of consolidated companies.

Independent audit report

for TRUMPF GmbH + Co. KG and Berthold Leibinger GmbH

Audit opinion

We have audited the consolidated financial statements prepared by TRUMPF GmbH + Co. KG, Ditzingen, and Berthold Leibinger GmbH, Ditzingen, comprising of the consolidated balance sheet as of June 30, 2018, the consolidated profit and loss statement, the consolidated cash flow statement, and the statement of shareholders' equity for the fiscal year from July 1, 2017 to June 30, 2018 as well as the notes to the financial statements, including the accounting policies and valuation methods. We have also audited the group management report of TRUMPF GmbH + Co. KG and Berthold Leibinger GmbH for the fiscal year from July 1, 2017 to June 30, 2018.

In our opinion, which is based on the findings of our audit,

– the attached consolidated financial statements comply in all material respects with the rules provided for by German commercial law, comply with German generally accepted accounting principles, and give a true and fair view of the Group's net assets and financial position as of June 30, 2018 and its results of operations for the fiscal year from July 1, 2017 to June 30, 2018, and

– the attached Group management report provides on the whole an accurate picture of the Group's situation. In all material respects, the Group management report is consistent with the consolidated financial statements, complies with the German statutory requirements, and accurately represents the opportunities and risks of future development.

In accordance with Section 322 (3) sentence 1 of the German Commercial Code (HGB), we state that our audit has not led to any reservations concerning the regularity of either the consolidated financial statements or the Group management report.

Basis for the audit opinion

We carried out our audit of the consolidated financial statements and Group management report in accordance with Section 317 of the HGB and in compliance with the generally accepted auditing principles of the Institute of German Certified Public Accountants (IDW). Further details of our responsibility in accordance with these provisions and principles are given below in the section entitled "Responsibility of the auditors for auditing the consolidated financial statements and Group management report." We are independent of the Group companies, in accordance with German commercial law and professional regulations, and have fulfilled our other German professional obligations in compliance with these requirements. We believe that the audit evidence we have obtained provides an adequate and suitable basis for our audit opinion on the consolidated financial statements and Group management report.

Other information

The Supervisory Board is responsible for the information disclosed in the Supervisory Board Report, which forms part of the annual report. Otherwise, the legal representatives are responsible for the other information provided. The term "other information" comprises those components of the annual report of which we received a version prior to expressing this audit opinion, in particular the sections "Message from the Group Managing Board" and "Supervisory Board Report."

Our audit opinion on the consolidated financial statements and Group management report does not cover this other information and, accordingly, we are not expressing any audit opinion on, nor drawing any other form of conclusion from, this information.

In the context of our audit, we are responsible for reading the other information and for assessing whether it

– departs in any material way from the consolidated financial statements, Group management report or the findings of our audit, or

– misstates the facts in any other material way.

If, in the performance of our duties, we gain the impression that this other information misstates the facts in any material way, we are obligated to report on this. We have nothing to report in this respect.

INDEPENDENT AUDIT REPORT

Responsibility of the legal representatives and the Supervisory Board for the consolidated financial statements and Group management report

The legal representatives are responsible for preparing the consolidated financial statements so that they conform, in all material respects, to German commercial regulations, and also for ensuring that the consolidated financial statements comply with German generally accepted accounting principles and give a true and fair view of the Group's net assets, financial position and results of operations. Further, the legal representatives are responsible for those internal controls that they deem necessary in accordance with German generally accepted accounting principles in order to facilitate the preparation of consolidated financial statements that are free of any material misstatements, whether intended or unintended.

When preparing the consolidated financial statements, the legal representatives are responsible for assessing the Group's ability to continue operating. They are also responsible for disclosing matters relating to the continuing operation of the Group, to the extent that these are relevant. In addition, they are responsible for preparing the accounts in accordance with the accounting principle of continuing operations, except to the extent that this is contrary to fact or law.

Furthermore, the legal representatives are responsible for preparing a Group management report that, on the whole, provides an accurate picture of the Group's situation and, in all material respects, is consistent with the consolidated financial statements, complies with German commercial regulations, and accurately represents the opportunities and risks of future development. In addition, the legal representatives are responsible for those precautions and measures (systems) they deem necessary to enable preparation of the Group management report in compliance with the applicable German statutory regulations and to furnish adequate suitable evidence for the statements made in the Group management report.

The Supervisory Board is responsible for monitoring the accounting processes the Group uses to prepare the consolidated financial statements and Group management report.

Responsibility of the auditors for auditing the consolidated financial statements and Group management report

Our objective is: firstly, to obtain reasonable certainty that the consolidated financial statements as a whole are free of any material misstatements – whether intended or unintended – and that the Group management report as a whole provides an accurate picture of the Group's situation and is, in all material respects, consistent with the consolidated financial statements and with the audit findings, complies with the German statutory regulations, and accurately represents the opportunities and risks of future development; and, secondly, to express an audit opinion that reflects the findings of our audit of the consolidated financial statements and Group management report.

Reasonable certainty means a high level of certainty, but does not constitute any guarantee that an audit conducted in accordance with Section 317 of the HGB, and in compliance with the generally accepted auditing principles of the Institute of German Certified Public Accountants (IDW), will always bring to light any misstatement. Misstatements may result from breaches or inaccuracies and are deemed material if there is reasonable expectation that, individually or together, they could influence economic decisions taken by readers on the basis of these consolidated financial statements or Group management report.

During the audit, we exercise due discretion and maintain a critical stance. In addition

- we identify and assess the risks of material – intended or unintended – misstatements in the consolidated financial statements and Group management report, plan and perform audit procedures in response to those risks, and obtain adequate and suitable audit evidence to provide a basis for our audit opinions. The risk that material misstatements may not be detected is greater for breaches than for inaccuracies, as breaches may involve fraudulent collusion, falsification, intentional incompleteness, misrepresentation, or the overriding of internal controls;

- we gain an understanding of the internal control system relevant to the audit of the consolidated financial statements, and of the precautions and measures relevant to the audit of the Group management report, in order to plan audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of those systems;

- we evaluate the appropriateness of the accounting policies used by the legal representatives and the reasonableness of the estimates and related disclosures presented by the legal representatives;

- we draw conclusions on the appropriateness of the accounting principle of continuing operations applied by the legal representatives and, on the basis of the findings of the audit, whether there is any material uncertainty about events or circumstances that could give rise to significant doubts about the Group's ability to continue as a going concern. If we come to the conclusion that there is any material uncertainty, we are obligated, in our audit opinion, to draw attention to the corresponding disclosures in the consolidated financial statements and Group management report or, should these disclosures be appropriate, to modify our audit opinion in each case. We draw our conclusions on the basis of the audit evidence available to us as of the date of our audit opinion. Future events or circumstances, however, may result in the Group no longer being able to continue its operations;

- we evaluate the overall presentation, the structure and the content of the consolidated financial statements, including the disclosures, as well as whether the consolidated financial statements present the underlying transactions and events in such a way as to give a true and fair view of the Group's net assets, financial position and results of operations in accordance with German generally accepted accounting principles;

- we obtain adequate and suitable audit evidence for the accounting information of the Group companies or the Group's business activities in order to express an opinion on the consolidated financial statements and Group management report. We are responsible for directing, monitoring and performing the audit of the consolidated financial statements. We bear sole responsibility for our audit opinion;

- we assess the Group management report's consistency with the consolidated financial statements, its legal conformity, and the picture it presents of the situation of the Group;

- we perform audit procedures on the forward-looking statements made by the legal representatives in the Group management report. On the basis of adequate and suitable audit evidence, we verify, in particular, the significant assumptions made by the legal representatives, and assess whether the forward-looking statements made are properly derived from these assumptions. We do not express any independent opinion on either the forward-looking statements or the underlying assumptions. There is a significant and unavoidable risk that future events will differ materially from the forward-looking statements.

Together with those responsible for monitoring, we discuss, among other things, the planned scope and timing of the audit and any significant findings of the audit, including any deficiencies in the internal control system that we identify during our audit.

Stuttgart, September 18, 2018

ERNST & YOUNG GMBH
WIRTSCHAFTSPRÜFUNGSGESELLSCHAFT

MARBLER
GERMAN PUBLIC AUDITOR

HEUBACH
GERMAN PUBLIC AUDITOR

Imprint

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Corporate Communications and Public Policy

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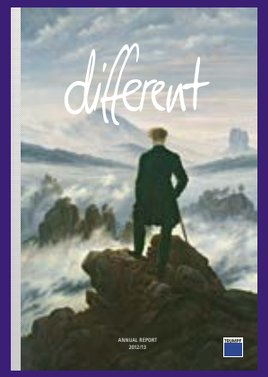
NOTE
With the exception of the Editorial and the Management Board and Supervisory Board Reports, only the masculine form is used predominantly throughout this Annual Report for the sake of readability, but it should be taken to refer to persons of both genders.

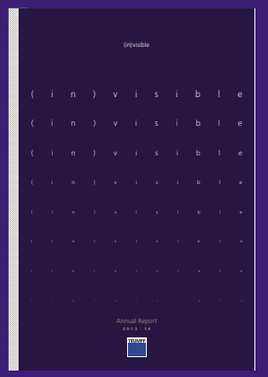
AHEAD OF THE CURVE

TRUMPF
Annual Report 2017/18

PUBLICATIONS 2012 – 2017

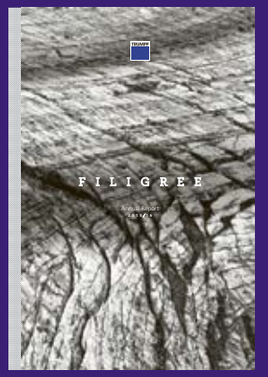


2012 / 2013

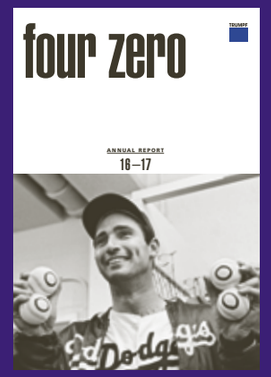


2013 / 2014

2014 / 2015



2015 / 2016



2016 / 2017

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Corporate Communications and Public Policy

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REALIZATION

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AHEAD OF THE CURVE

TRUMPF
Annual Report 2017/18

07.2017 — 11.2017

07.2017

DIRECT DIODE LASERS

High power, better beam quality

Conventional direct diode lasers can be used for soldering, for heat conduction welding, and for surface processing, as these applications do not require high beam quality. Such diode lasers are based on individual diode emitters with laser outputs of a few watts. Using a new technology called "dense wavelength multiplexing", TRUMPF experts have managed to generate a multiplexed laser beam with high beam quality by combining the outputs from individual diode emitters using the new Dense Wavelength Multiplexing technology.

09.2017

SMART FACTORY

The Industry 4.0 experience

TRUMPF's new technology center in Chicago showcases the company's Industry 4.0 solutions. Focused squarely on the concept of the smart factory, the center provides advice and training to customers who are looking to introduce digitally connected manufacturing solutions. To show exactly how that can work, TRUMPF designed a factory that links together the whole sheet metal process chain in an intelligent manner – from the commissioning of a sheet metal component to its design and manufacture and delivery of the finished part. The Chicago site is situated at the heart of the North American market for sheet metal processing, with some 40 percent of the entire sheet metal processing industry located in the surrounding states. Custom-built in a unique style, the TRUMPF Smart Factory is an impressive sight. Covered in large display screens, the control room shows visitors live, real-time production data in the form of KPIs and other indicators. On the factory floor is a sheet metal processing chain with a high bay racking system at its center, which supplies the connected machine tools with materials. The demo factory was designed by the Berlin-based architects' firm Barkow Leibinger.

11.2017

EASY ORDER

Ordering by app

The MyTRUMPF online shop provides a quick and easy way for customers to order wear and spare parts such as punching tools. With the Easy Order system, customers can order parts using an app, a button, or a parts dispenser.

Customers can install Easy Order buttons wherever they like, even on a machine. Each button is the gateway to one specific spare or wear part – when the operator pushes it, it triggers an order. The user does not have to enter the item number or customer code.

Alternatively, customers can simply open the Easy Order app on their smartphone. This contains all the most common wear parts. Customers can order products such as lenses and nozzles in just a few clicks. And ordering replacement punching tools is a simple matter of scanning the tool code.

On request, a Genuine Parts Center can also be connected to Easy Order. This parts dispenser contains the main wear parts used by the customer and is designed to help customers keep track of stock levels. The machine automatically generates an order as soon as stocks drop below a specified level.

All these solutions – the Genuine Parts Center, app and buttons – also help to streamline administrative processes within companies. Users can see who ordered what parts when via the app, dispenser or button. They can also control who is authorized to approve orders.

04.2018

TRULASER CELL 5030

Robust and low-maintenance

The new TruLaser Cell 5030 is designed for prototypes and for low-to-medium volume production. Equipped with a TRUMPF disk laser as standard, the system is robust, low-maintenance and energy-efficient. Companies can use the machine to expand their portfolio from 2D to 3D laser processing. It is also the perfect choice to replace older hybrid machines with CO_2 lasers that are due to be phased out.

TRUMPF focused on two essential factors when it developed this new machine: an attractive price and excellent cutting results. The system also features 'flying optics,' a system in which the laser processing head 'flies' across the stationary, clamped part and machines programmed points along the way. This ensures accurate processing, regardless of the weight and position of the part.

04.2018

TRULASER TUBE 7000

Dynamic high-power laser

Whether processing intricate tubes for office furniture or large profiles for farm machinery, the new TruLaser Tube 7000 is an extremely fast and effective solution. The solid-state laser cuts tubes and profiles with diameters of up to 254 millimeters and material thicknesses of up to 10 millimeters. It also performs bevel cuts at angles of up to 45 degrees.

The heart of the system is the four-kilowatt TruDisk 4001, a high-power disk laser manufactured in-house by TRUMPF. An additional productivity boost is offered by the RapidCut function: By superimposing the movements of the tube axis and cutting head, the TRUMPF design engineers have achieved a fourfold increase in machine dynamics.

11.2017 — 04.2018

TECHNOLOGY HIGHLIGHTS