

Sintratec S2

The compact and expandable
SLS system

Sintratec S1

The SLS system for professional needs

Sintratec Kit

The low-cost kit

 **PRINT YOUR MIND**
TURN YOUR IDEAS
INTO REALITY
WITH OUR
3D PRINTERS

BREAK DOWN THE BARRIERS!

Dear Technology Community,

Our vision isn't just to make your design ideas tangible; it's also to give them the perfect shape and a flawless surface. We firmly believe that, with the help of Sintratec technology, tomorrow you'll be developing even better products, further optimizing your applications and therefore creating some key advantages. Your creativity should be given a free rein, and untapped potential in design and development should be unleashed. It's all about breaking down existing barriers between the ideas in your head and implementing them in reality – no matter whether you're dealing with a batch size of one or one thousand. We're moving a huge step toward achieving this vision with Sintratec S2, our brand-new manufacturing solution.

Welcome to the world of additive manufacturing!



Dominik Solenicki
Co-Founder and CEO of Sintratec AG



Christian von Burg
Co-Founder and CTO of Sintratec AG

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We guide you into the future of additive manufacturing

❖ SINTRATEC S2

SEMI-AUTOMATIC, FLEXIBLE AND EXPANDABLE

With Sintratec S2, the new scalable compact system, you can turn your ideas into reality within a short period of time, layer by layer, at high speed. The modular SLS production system can be expanded as needed, and adapts perfectly to your needs. Harness previously unimagined potential in professional prototyping and optimize your applications.

The processes of material preparation, printing and depowdering are integrated in a closed and semi-automatic system, which is new and unique in the field of selective laser sintering.



MODULARLY DESIGNED AND SELF-CONTAINED

Sintratec S2, the affordable all-in-one solution, allows you to minimize downtimes and benefit from cost-effective operation. You can carry out a material change within a short space of time; tedious cleaning processes are a thing of the past.

The selective laser sintering system consists of the Laser Sintering Station (LSS), the Material Core Unit (MCU) and the Material Handling Station (MHS). With the additional modules – the Sintratec Blasting Station (a blasting cabinet), the Sintratec Polishing Station (a magnetic tumbler) and the Sintratec Vortex Unit (a powder management module) – you get a uniquely self-contained process system for additive manufacturing.

Once high-quality SLS printing is complete, the printed objects are conveniently and cleanly de-powdered. Both the blasting unit and the magnetic tumbler help to create a refined surface. The ingenious Material Core Unit allows you to easily switch from one print material to another. Thanks to the modular system design, you can expand your SLS machinery as needed.



SINTRATEC S2 LASER SINTERING STATION (LSS)



The Sintratec Laser Sintering Station's cylindrical printing volume means you get consistent and homogeneous printing results. You can follow your print job live at any time and evaluate the surface of the individual printed layers in real time with the integrated 4K camera. The precise laser scanning system enables improved repeat accuracy and fast printing processes. The sophisticated heating system gives your SLS parts a high-quality surface finish.

- Faster printing due to a shorter preparation time
- Precise laser scanning system
- Eight controlled heating zones for optimum printing processes

TECHNICAL SPECIFICATIONS

X-Y laser scanning system for fast printing	Height x width x depth	1,500 x 1,000 x 750 mm
High-resolution camera for real-time evaluation	Weight	Less than 100 kg
Touchscreen for direct operation	Power supply	230 V 2 kW max
Network connection for remote control and monitoring		
Contactless point measurement for powder surface temperature control		
Multi-zone heating		

SINTRATEC S2 MATERIAL HANDLING STATION (MHS)



You no longer need additional equipment for screening used print materials for reprocessing – and it's all thanks to the efficient screening function in the Sintratec Material Handling Station. The freely accessible work area with an air filtration system gives you a clear view of the object to be depowdered, which also allows for a clean working environment.

- No additional tools needed to screen the print material
- High visibility when depowdering the parts
- Touchscreen-based operation

TECHNICAL SPECIFICATIONS

Air filtration system	Height x width x depth	1,650 x 1,000 x 750 mm
High-resolution camera for real-time evaluation	Weight	Less than 100 kg
Touchscreen for direct operation	Power supply	230V 1.5 kW max
Network connection for remote control and monitoring		
Integrated screening function		
Integrated mixing function		
Integration with Sintratec Vortex Unit		

SINTRATEC S2 MATERIAL CORE UNIT (MCU)

The mobile Sintratec Material Core Units with an integrated powder mixing function ensure convenient powder handling. Several units allow you to increase the material variety and reduce downtimes.

- High level of process reliability
- Optimum mixing ratio
- Automatic powder detection
- Integrated multi-zone heating for build cylinders
- Two internal powder tanks for quick layer changeover
- Integrated re-coating system (coordinated to powder)

Build cylinder height	400 mm
Build cylinder diameter	160 mm*
Height x width x depth	1,100 x 870 x 550 mm
Weight	Less than 100 kg

*Effective printing range depends on the application and material



SINTRATEC BLASTING STATION

The Sintratec blasting unit creates visually appealing SLS workpieces with an improved surface quality in a short amount of time.

- Dust-free work thanks to full circumferential seals on the cover frame and door frame
- 12 V fluorescent tubes with 230 V power supply unit and external switch for excellent visibility
- Suitable for different blasting materials such as quartz, glass beads and plastic beads

Working pressure	2.8–8 bar
Compressed air connection	3/8"
Internal dimensions	580 x 480 x 300 mm
External dimensions	590 x 485 x 490 mm
Weight	17.25 kg



SINTRATEC POLISHING STATION

Creating smooth surfaces on your SLS workpieces is simple and convenient with the Sintratec magnetic tumbler. The stainless steel magnetic polishing pins seal surface impurities, creating an improved finish within a short period of time.

- Autonomous and compact system
- Sealing of surface impurities
- Several components can be processed at the same time

External dimensions	290 x 290 x 340 mm
Weight	20 kg
Speed	2,800 revolutions per minute (rpm)



SINTRATEC VORTEX UNIT

Removing excess and used powder is a piece of cake with the professional powder management module. Powder that has already been used is collected, sieved and made available for the next print jobs.

- Single-motor wet and dry vacuum cleaner
- High-efficiency cyclone pre-separator
- Anti-static industrial vacuum cleaner

Weight	Approx. 20 kg
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Included in the Sintratec S2 Material Handling Station (MHS)



THE SLS SYSTEM FOR PROFESSIONAL NEEDS

The Sintratec S1 allows you to perfectly turn your digital 3D objects into reality. The integrated laser sintering technology allows you to create highly complex and functional parts with virtually unlimited freedom in terms of shape – from rapid prototyping to very small batches.

Laser sintering is a recognized method in industrial additive manufacturing. Thanks to the Sintratec S1's diode laser, you achieve particularly high-resolution printing results. With Sintratec technology, you create high-quality objects that are tailored precisely to your needs.

The integrated "Sintratec Central" software helps you to achieve perfect printing results.

This user-friendly software means you've got your printing processes under control at all times.

The Sintratec S1 was developed to meet the specific needs and requirements of an extremely wide range of industries. In addition to aviation, the automotive industry, medical technology and industrial manufacturing, the Sintratec S1 is also used at universities and research institutes.



Functional Part

This microphone, climate sensor and antenna holder was designed by Elekon AG. This part is used in a measuring instrument for the observation of bats.



Functional Prototype

Virtually unlimited freedom in terms of shape during engineering: Bosch uses this highly stretchable object as a basis for creating individually adaptable designs for a medical technology application.



TECHNICAL SPECIFICATIONS

Print volume (maximum)	130 × 130 × 180 mm
Print volume (recommended)	110 × 110 × 160 mm
Layer height	100 µm
Height × width × depth	757 × 670 × 365 mm
Weight	67 kg
Delivery state	Ready to print
Power connection	230 V
Maximum power consumption	1.9 kW

“3D-PRINTED MATERIAL WITHSTANDS A WATER PRESSURE OF 48 BAR.”



GEBERIT

Hugo Arnold
Head of Prototyping Laboratory
Geberit, Switzerland



Geberit uses various 3D printers to make functional prototypes. The company is thrilled with the components printed with the Sintratec S1.

Since most Geberit products come into contact with water, it's not just important these prototypes are watertight; they also need to withstand strong water pressure.

Hugo Arnold, Head of Geberit's Prototyping Laboratory, remembers: “After Sintratec sent us an internal pressure body, we were able to perform the first tests that were important to us. And the results were surprisingly good. To perform these tests, we mounted the part on an open pipe, let water flow in and then continuously increased the water pressure until the part burst. We compared the pressure it withstood to parts built with other devices. We were surprised that the part printed by a Sintratec S1 withstood 30 bar of water pressure. But what made us even happier was that Sintratec asked us to conduct a second test once new software and firmware had been implemented. The improvements were impressive. The new part now burst at a water pressure of 40 bar. After visiting Sintratec, we at Geberit were completely convinced by the 3D printer manufacturer's professionalism and products. That's when we ordered our Sintratec S1. We've been continuously conducting further research with the machine since then, and the parts printed with the S1 now even withstand 48 bar of water pressure.”

“A CUSTOM-MADE CHAIR FOR EACH PATIENT.”



eemag

Cyrill Aemisegger
Head of Technology
EEM AG, Switzerland



Everything that EEM AG does focuses on the person and its spine. The Swiss company develops, produces and sells ergonomic chairs under the *grow concept* brand.

EEM AG has set a goal of improving peoples' quality of life and increasing companies' economic efficiency with innovative products and services. In the healthcare industry, products are increasingly being adapted to customers' individual needs, which is why there is a growing need for parts that simply aren't available as “ready-made” solutions, but instead are tailor-made specifically to suit the user's requirements. Cyrill Aemisegger, Head of Technology at EEM AG: “Using the Sintratec S1, we can quickly turn our new ideas into reality and immediately put them to the test.”

In addition to making customized components and small series production batches, EEM AG also uses Sintratec technology for development processes in mold construction. For example, before a complex injection mold is produced for mass production, EEM checks the function and design of 3D-printed prototypes. Cyrill Aemisegger sums it up: “The Sintratec S1 runs day and night at our company.”

THE LOW-COST KIT

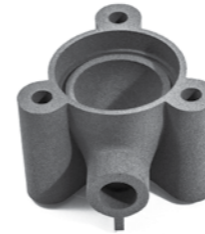
Would you like to bring crazy design concepts to life?
The Sintratec Kit allows you to easily print high-quality objects in a virtually unlimited range of shapes. It's the perfect introduction to the world of additive manufacturing.

Laser sintering is a recognized method in industrial additive manufacturing. The Sintratec Kit – the only SLS kit of its kind in the world – helps you to take the ideal first step into the world of selective laser sintering – at an affordable price.

Thanks to the Sintratec Kit's diode laser, you achieve particularly high-resolution printing results.

With Sintratec technology, you create high-quality objects that you can tailor precisely to your needs.

The integrated "Sintratec Central" software helps you achieve perfect printing results. This user-friendly software means you've got your printing processes under control at all times.



Functional Prototype

ETH Zürich designed this component for a geo-scientific test apparatus that measures the permeability of a substrate or a rock.



Functional Part

To ensure that the robots don't scratch visually perfect parts, Samuel Werder AG has developed these sensitive yet stable grippers made of flexible material.



TECHNICAL SPECIFICATIONS

Print volume (maximum)	110 × 110 × 110 mm
Print volume (recommended)	90 × 90 × 90 mm
Layer height	100 µm
Height × width × depth	600 × 520 × 380 mm
Weight	28 kg
Delivery state	Kit
Installation time (1 person)	Approx. 4 days
Power connection	230 V or 110 V AC
Max. power consumption	1.7 kW

“WE CAN PRODUCE
MADE-TO-MEASURE PILLS.”



Fabrizio Fina
PhD student
FabRx, United Kingdom



FabRx is a spin-off company from University College London (UCL) and is a leading developer of 3D-printed pharmaceuticals. The company uses two Sintratec Kits, among other things, to make what are known as “printlets” (3D-printed tablets).

FabRx decided to buy this kit because the parameters of the Sintratec Kit can be set at will. After all, printing of pharmaceuticals requires specific parameter settings. If this is not done correctly, the pharmaceuticals and excipients run the risk of being completely degraded. “With the Sintratec Kit, parameters like laser speed and temperature can be adjusted precisely to meet our needs,” explains Fabrizio Fina, a PhD student at University College London.

The SLS method is used to print pharmaceuticals with several active ingredients in a wide range of shapes, sizes, colors and textures to make them more attractive to various patient groups, particularly children and the elderly. “We are the first research group in the world to conduct research into using selective laser sintering to print oral formulations,” says Fabrizio Fina. FabRx’s work was published in the International Journal of Pharmaceutics. The spin-off company also won the TCT Start-Up Award with the project. Fabrizio Fina: “Because of the surprising printing results, we’ve just bought a second Sintratec Kit.”

“PARTS AREN’T SCRATCHED DURING
HANDLING.”



Claude Werder
Owner and Chairman of the Board
Samuel Werder AG, Switzerland



Werder Feinwerktechnik AG manufactures components for an extremely wide range of industries. To ensure that the surface of delicate parts don’t end up damaged, the Swiss company prints workpiece grippers with the Sintratec Kit.

The workpiece grippers need to have different characteristics depending on the sensitivity of the workpiece and the processing step. For example, the softest possible grippers should be used for workpieces that are easily scratched. Sandblasting, on the other hand, requires hard, stable grippers. This makes the gripper production process complex.

Claude Werder, Owner and Chairman of the Board of Samuel Werder AG: “With the laser sintering process perfected by Sintratec, unimaginable possibilities have all of a sudden opened up to us, and brand-new solutions are being created.” SLS technology allows the creation of complex objects with an almost unlimited variety of shapes – objects that can also withstand mechanical stress and are stable over the long term. Furthermore, because the parameters of the Sintratec Kit can be freely configured, the properties of the printed parts, such as hardness and flexibility, can be precisely controlled and optimally matched to suit the requirements of the workpiece in question. Claude Werder adds: “Since these unique items are only ever needed in small quantities, it just makes good economic sense to make them using SLS 3D printing.”

POLYMER OR ELASTOMER: TWO FIRST-CLASS MATERIALS

Using our two powder materials, you can produce objects with a wide variety of geometries and stresses and different properties.

Print high-quality parts that can be used as functional prototypes in mechanically demanding applications or that can be directly installed as components. On the one hand, Sintratec PA12 is a first-class industrial polymer powder (nylon). It's suitable for precise objects that have to be stiff

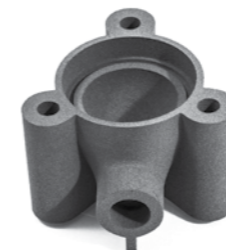
and temperature-resistant and need to have a long service life. Components can be excellently mechanically reworked. On the other hand, with the new Sintratec TPE elastomer powder, you can produce precise objects that are highly elastic.



SINTRATEC PA12

Sintratec PA12, the high-tech polymer, was specifically developed for use in additive manufacturing. The anthracite-colored powder guarantees a high level of stability and a high resolution, even in the case of fine and complex objects. The surface of the printed components can be soaked in a chemical bath if needed.

Main material	Polyamide 12
Color	Anthracite
Particle size	Approx. 60 µm
Melting point	180 °C

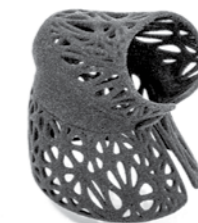


Functional prototype
of a basic design
for a soil measuring
instrument.

SINTRATEC TPE

Sintratec TPE, the elastomer powder, was developed to print rubbery, highly flexible parts. The material is surprisingly stretchy and retains its shape well. It therefore offers the ideal characteristics for applications with dynamic components that have to return to their exact original shape after being stretched.

Main material	Elastomer
Color	Anthracite
Particle size	Approx. 50 µm
Melting point	110 °C



Functional prototype
of a complex object
for medical technology.

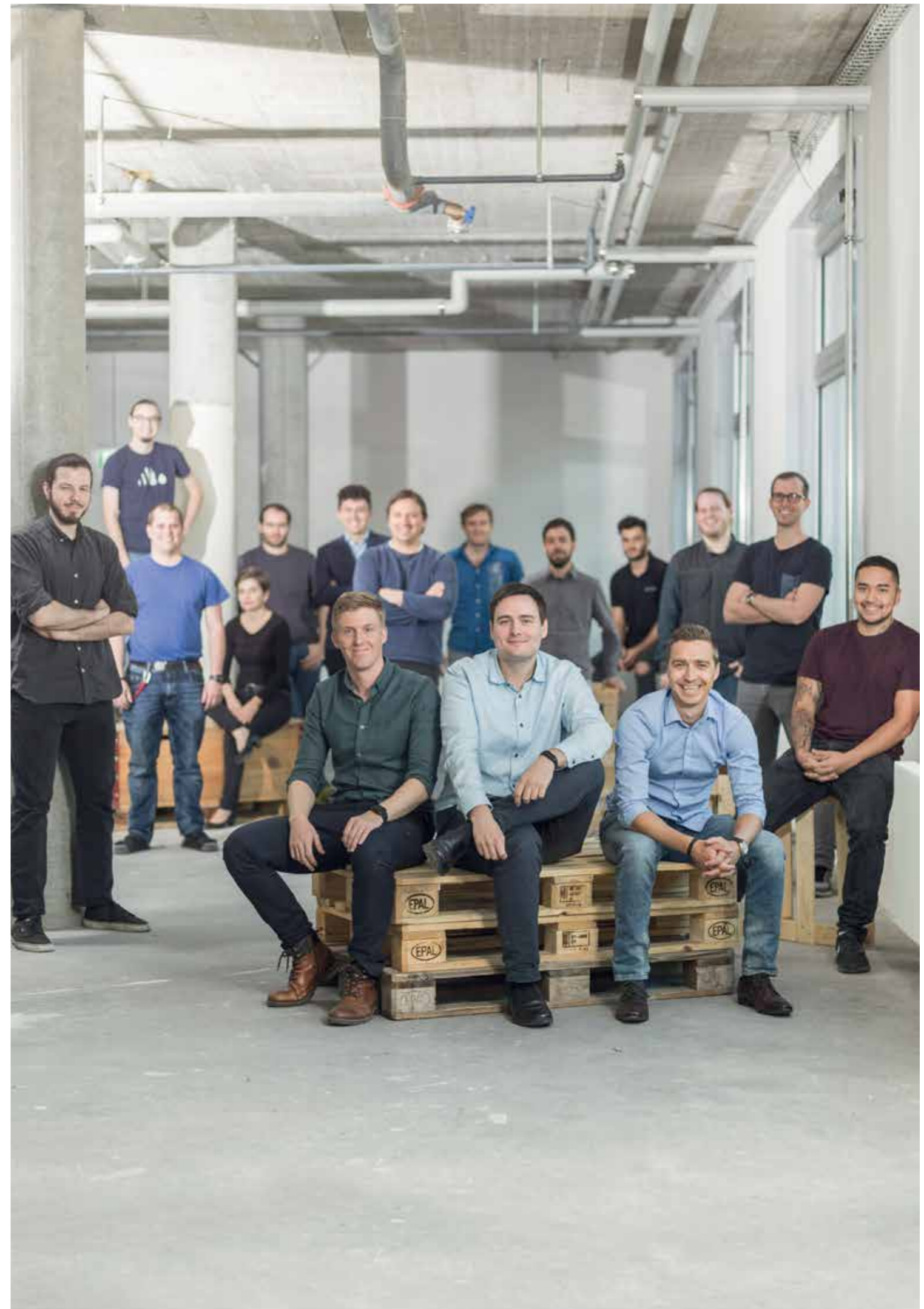
✦ SINTRATEC TEAM

WE GUIDE YOU INTO THE FUTURE OF ADDITIVE MANUFACTURING

We are Sintratec, a Swiss developer and manufacturer of SLS 3D printers for professional use. Founded in 2014 as a start-up company, we have taken the decisive step toward becoming a respected technology company.

Our compact selective laser sintering systems process high-grade polymer materials in an additive process, which we then use to print heavy-duty and temperature-resistant objects. The technology we develop allows users from a wide range of

industries to create complex objects that meet the highest demands in a wide range of shapes. Our technology is successfully used around the world in various industries and at research institutes and universities.





PRINT
YOUR MIND

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