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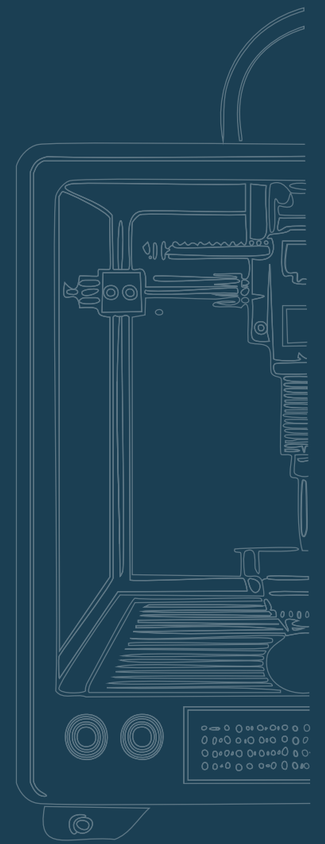
LATTICE SERVICES
Medical 3D Printing

Do not dispose of on the public highway

LATTICE SERVICES

3D PRINTING FILAMENTS AND SERVICES IN THE MEDICAL FIELD



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Discover our filaments and support services for medical 3D printing

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OUR STORY

Lattice Services, a brand of Lattice Medical.

Lattice Medical is a French company whose main mission is to provide patients and healthcare professionals with simple, risk-free, customized tissue reconstruction solutions using 3D printing.

The company's first application concerns breast reconstruction after cancer, with the design and development of the MATTISSE bioprosthesis. The second application is skin reconstruction, with the RODIN device.

Building on its expertise, Lattice Medical is developing its Lattice Services brand in 2020. The company markets medical-grade filaments for 3D printing, with several ranges of raw materials.

Thanks to a range of adapted services, Lattice Services supports companies, whether by supporting them in the co-development of their medical devices, or by helping them through a specific stage.

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OUR FILAMENTS

Resorbable and implantable

At Lattice Services, we produce medical-grade 3D filaments
filaments directly on our premises, using certified polymer pellets to meet the requirements of the healthcare sector. Our filaments are specially designed for medical applications, guaranteeing optimal biocompatibility and safety. We offer two main ranges: absorbable and implantable filaments, available in 100 or 200 g spools, and skin-contact filaments, available in 500 g spools.

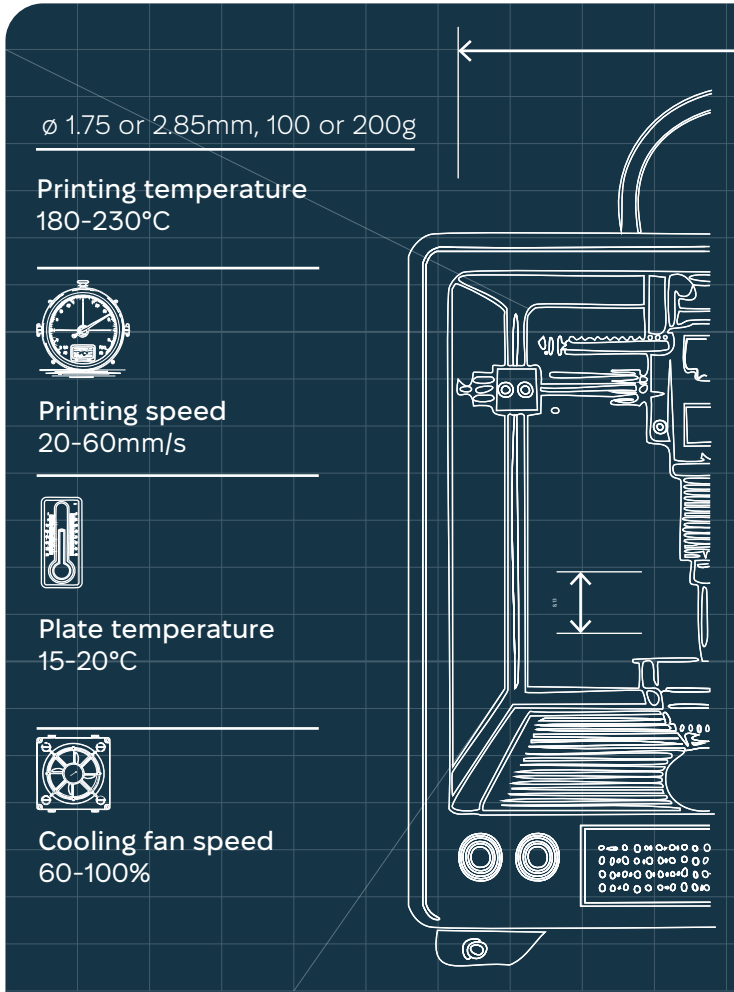
Our filaments are available in two diameters, 1.75 mm and 2.85 mm (except for TPE, 1.75 only), and are compatible with a wide range of 3D printers, depending on their printing properties. Whether for research projects, prototypes or finished medical devices, our filaments offer exceptional precision and reliability, meeting the most stringent requirements of the medical sector.

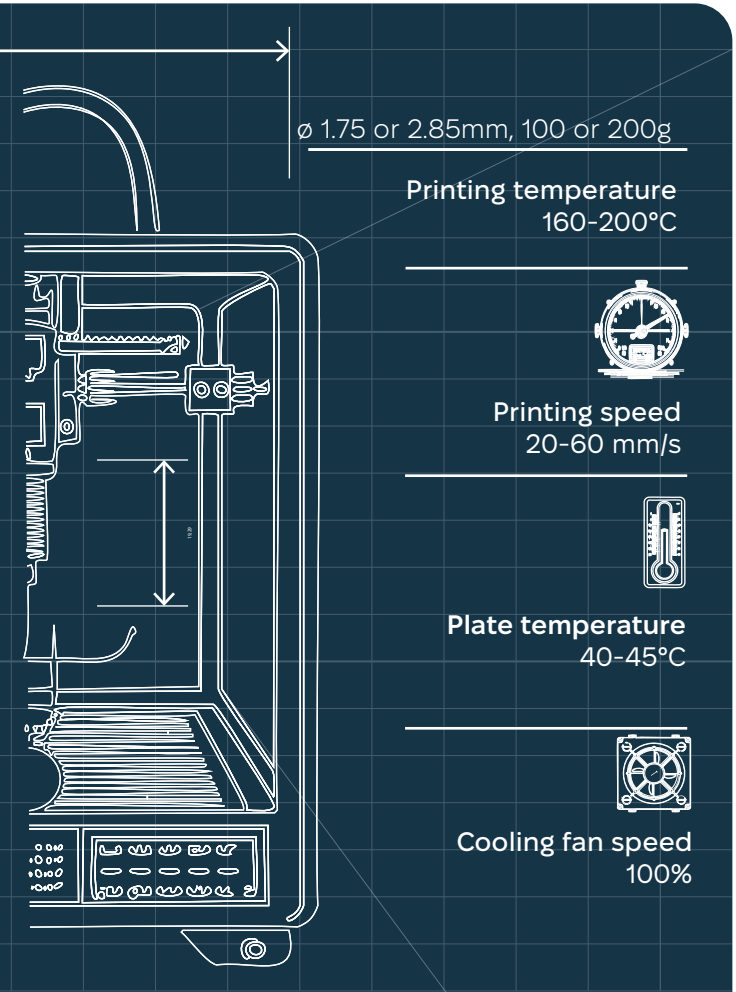
Our PLCL 70/30 filament is made with a medical-grade copolymer composed of **70% lactic acid** and **30% caprolactone**. This transparent filament, implantable and resorbable in **12 to 24 months**, is soft and slightly white. Ideal for parietal reinforcements and nerve reconstruction guides, it retains remarkable flexibility thanks to its glass transition temperature close to room temperature.

Application examples
- Parietal meshes
- Nerve reconstruction guides

POLY(L-LACTIDE-CO-E-CAPROLACTONE) POLYMER

PLCL





Our PCL 100 filament is made with a medical-grade polymer made from high-quality **polycaprolactone** (PCL). This white, semi-flexible filament is implantable and resorbable in over **36 months**. It is ideal for tissue engineering scaffolds, osteosynthesis plates, screws, and sutures. Thanks to its below-ambient glass transition temperature, it retains optimum softness and flexibility.

Application examples

- Scaffolds for tissue engineering
- Osteosynthesis plates and screws
- Sutures

POLYCAPROLACTONE POLYMER

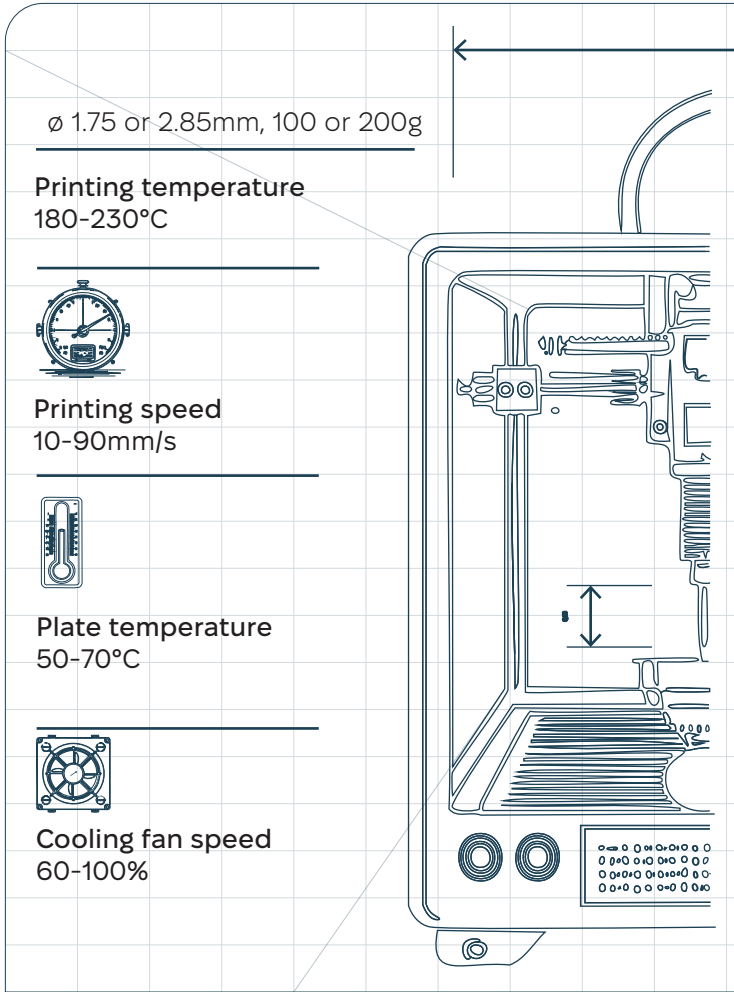
PCL

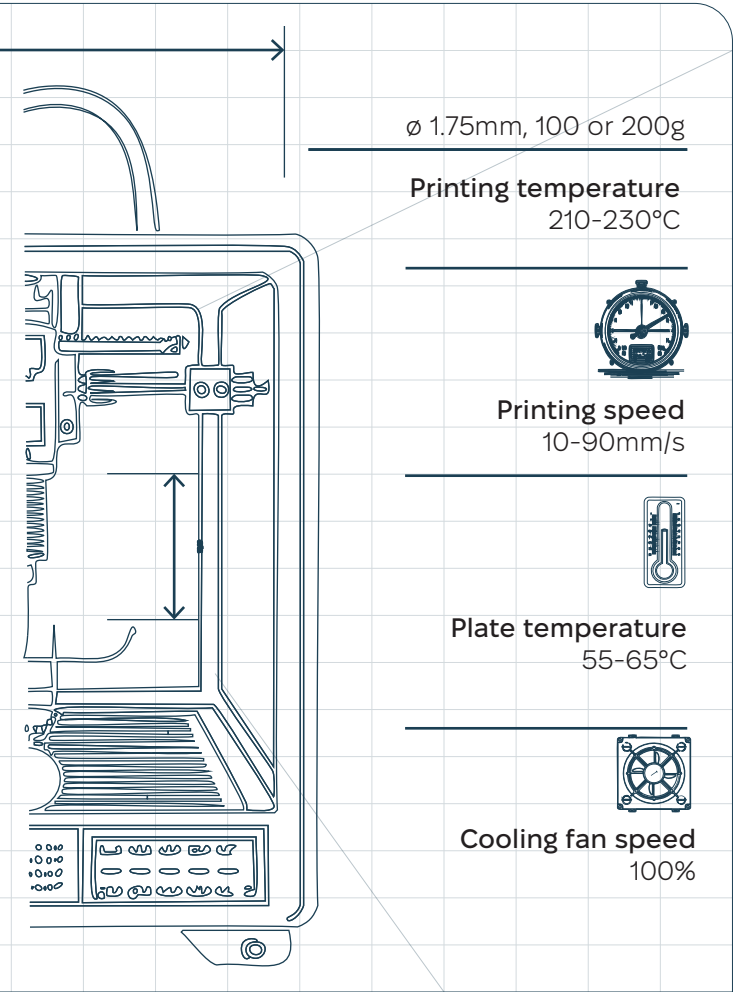
Our PLGA 85:15 filament is made with a medical-grade copolymer composed of **85% lactic acid** and **15% glycolic acid**. This transparent filament with its slightly golden sheen is designed to be implantable and resorbable in **12 to 24 months**, meeting the stringent requirements of the healthcare sector. Its rigidity at room temperature ensures efficient integration and controlled resorption in the human body.

Application example
- Bone implant
- Orthopedic screws
- Reconstruction plate

POLY(LACTIC-CO-GLYCOLIC) POLYMER

PLGA





Our PLGA/HA filament is an ivory-colored filament composed of **90% PLGA** and **10% hydroxyapathite***. It is designed to resorb within **12 to 24 months** after implantation. Thanks to its rigidity at room temperature, it offers exceptional stability, being above its glass transition temperature. The addition of hydroxyapatite, a natural component of bone, considerably enhances PLGA's osteoconductive properties, making it the material of choice for bone reconstruction.

**It is possible to modify this charge by contacting us for a customized filament request.*

Application examples

- Bone implants
- Tissue engineering
- Orthopedic screws

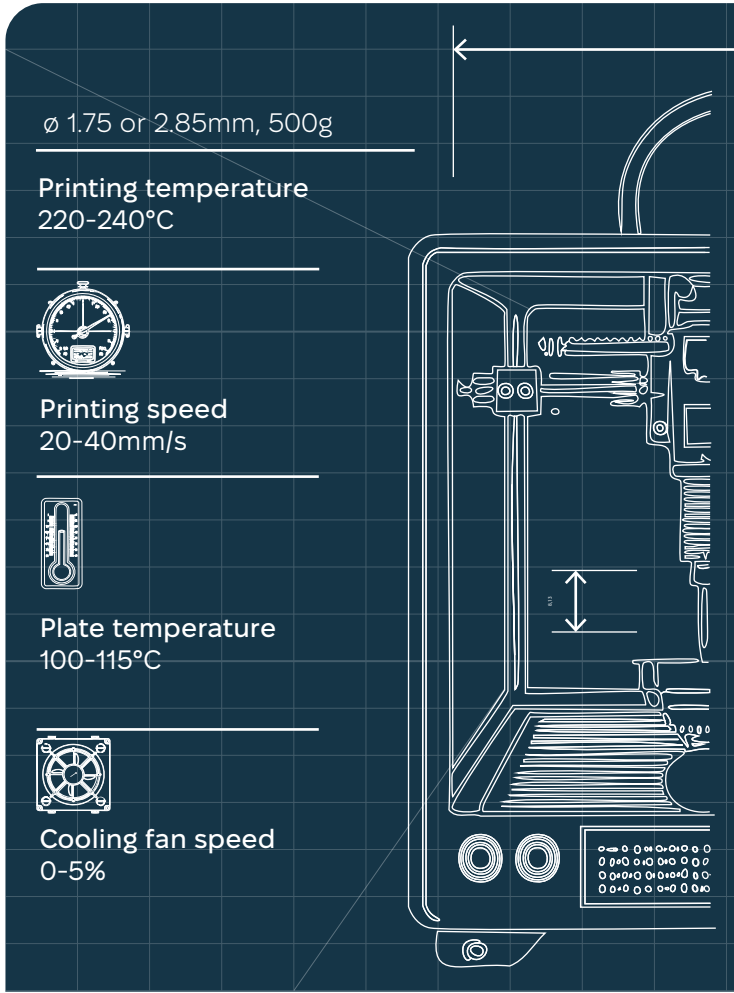
PLGA
HYDROXYAPATHITE

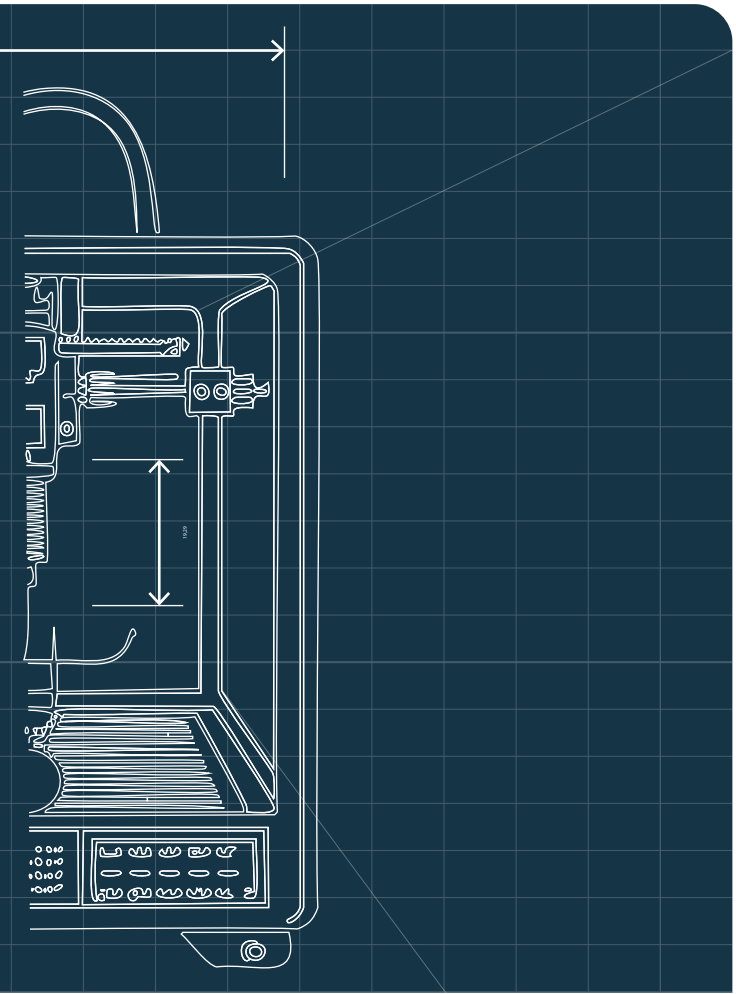
Our PDO filament is made of soft, white **polydioxanone**. It is designed to be implantable and resorbable in **4 to 6 months**. Thanks to its below-ambient glass transition temperature, it offers optimum softness and flexibility, ensuring efficient integration and resorption in the human body.

Application examples
- Sutures
- Tensor threads

POLYDIOXANONE POLYMER

PDO





Create customized 3D printing filaments with LATTICE SERVICES polymers or your **own materials**. Customize your product by adjusting the diameter from **0.8 mm to 3 mm** and incorporating unique functional properties, such as antibacterial, conductive or cell regeneration capabilities. Transform your projects with our flexibility and expertise in advanced materials.

CUSTOMIZED

Skin contact

Our medical-grade ABS 3D filament is designed for skin-contact applications. Made from high-quality **Acrylonitrile Butadiene Styrene** (ABS) pellets that are ISO 10993-5 certified for biocompatibility, this filament offers excellent durability and rigidity. Available in 1.75 mm or 2.85 mm diameter spools, it is perfect for precise, reliable printing.

Application examples
- Orthotics
- Anatomical models
- Prototypes

ACRYLONITRILE BUTADIENE STYRENE POLYMER

ABS

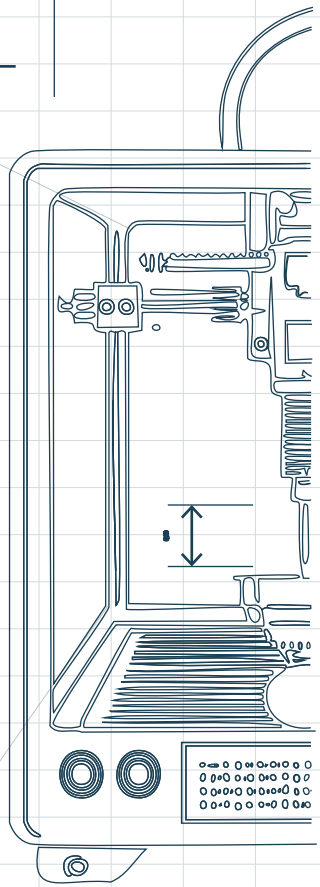
ø 1.75 ou 2.85mm, 500g

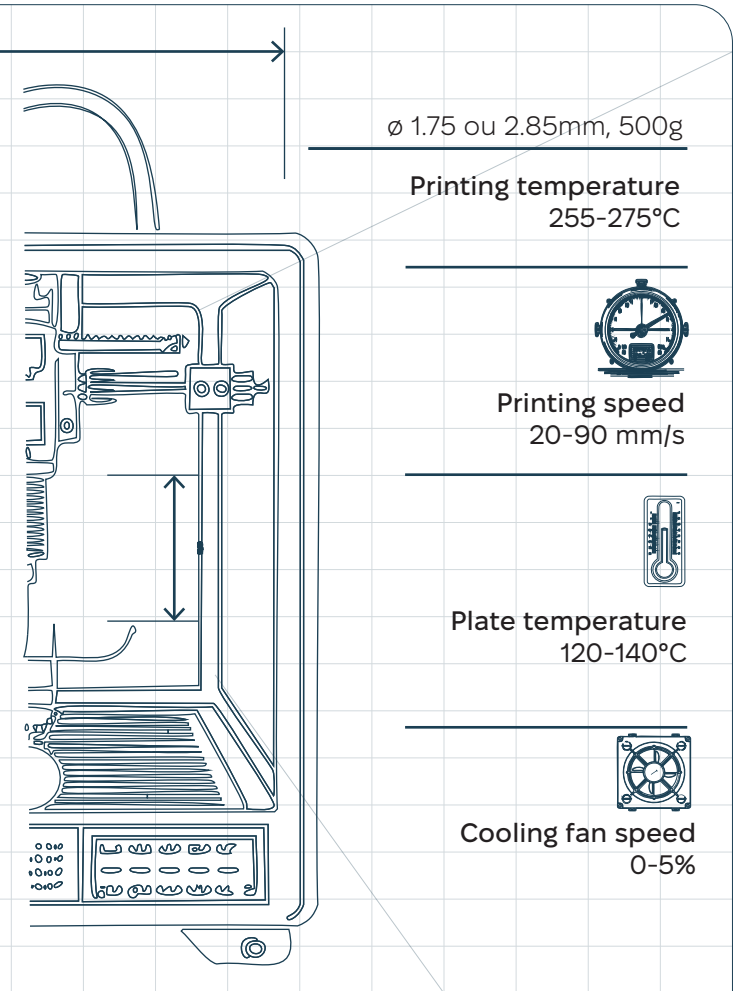
Printing temperature
220-240°C

Printing speed
20-90mm/s

Plate temperature
100-115°C

Cooling fan speed
0-5%





Our medical-grade **polycarbonate** (PC) 3D filament is designed for skin-contact applications. Made from transparent pellets with bluish highlights that are ISO 10993-5 certified for biocompatibility, this strong and durable filament is ideal for manufacturing surgical guides and medical instruments. It can be sterilized by **autoclave**, guaranteeing safe, hygienic use.

Application examples

- Surgical and cutting guides
- Tubing connection components
- Medical instruments

POLYCAPROLACTONE POLYMER

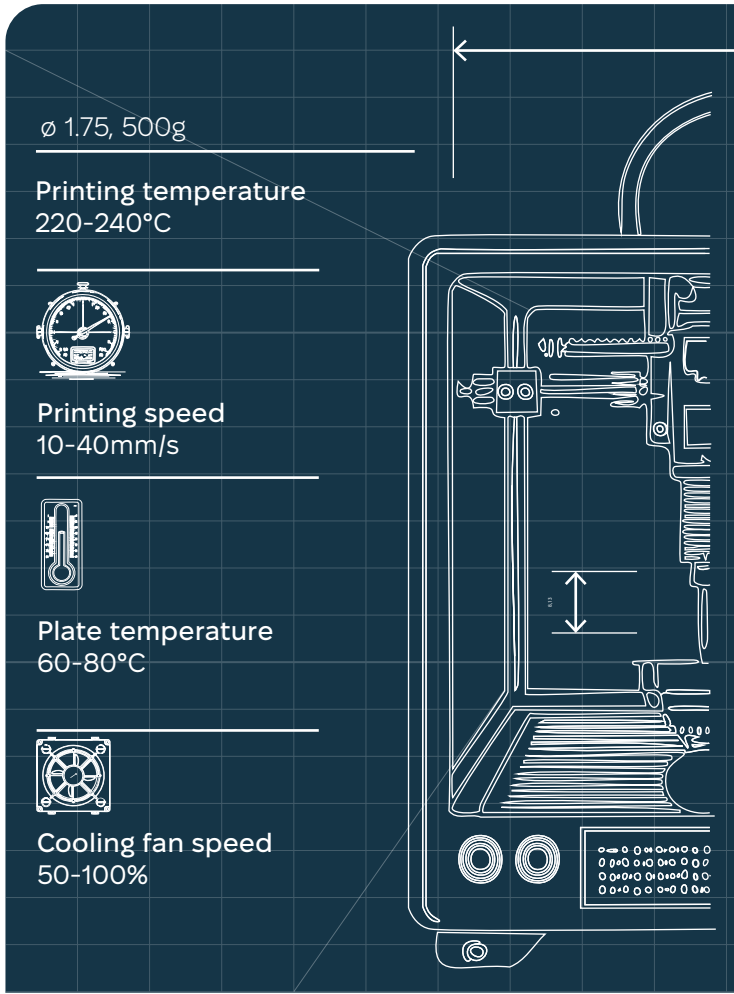
PC

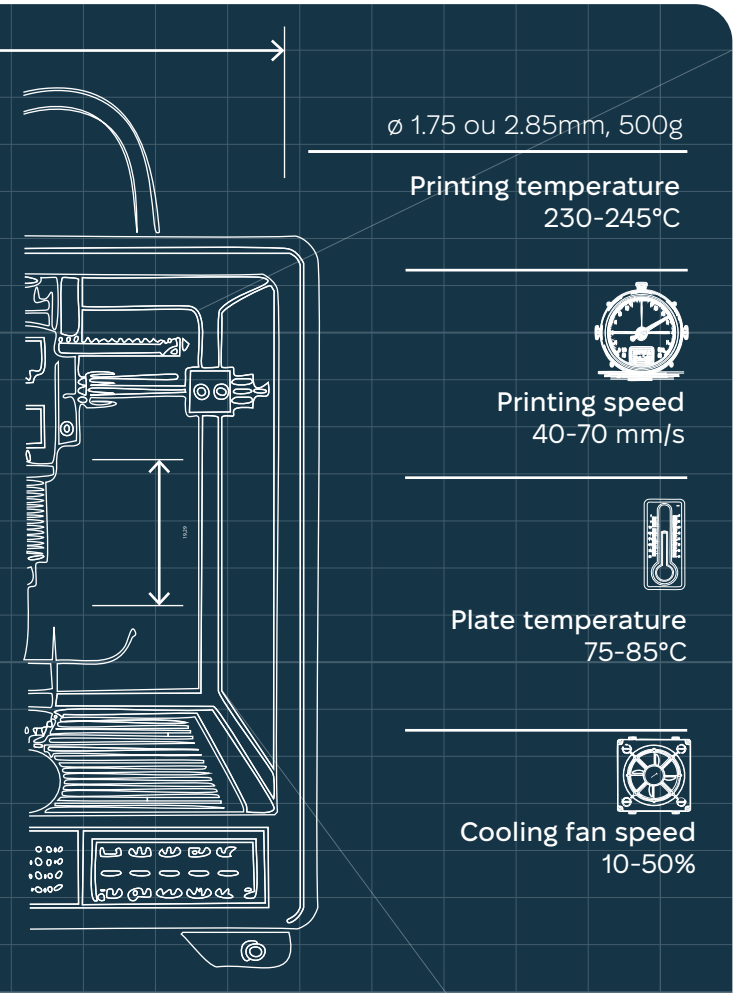
Our medical-grade TPE filament is specially designed for skin-contact applications. Made from **thermoplastic elastomer** pellets that are ISO 10993-5 certified for biocompatibility, this flexible, durable filament offers excellent elasticity, making it ideal for a variety of medical applications. With a Shore 88A flexibility, it is perfect for projects requiring soft, tough materials.

Application examples
- Flexible surgical models
- Orthopedic devices

POLYMÈRE THERMOPLASTIQUE ELASOMÈRE

TPE





Our PETG filament, made from medical-grade **polyethylene glycol** pellets that are ISO 10993-5 certified for biocompatibility, is designed for skin-contact applications. This transparent filament is valued for its ease of use and chemical resistance. PETG is an amorphous, rigid thermoplastic, ideal for prototype packaging for medical devices and appliances in contact with fluids.

Application examples

- DM packaging
- Blister prototypes

POLYETHYLENE GLYCOL POLYMER

PETG

PRODUCT GUIDE

Essential features

Resorbable and implantable	Ease of use	Resorption time	Thermal resistance	Chemical resistance	Mechanical resistance	Resistance to fatigue
PLCL	2	3	1	2	2	4
PCL	2	5	1	3	3	4
PLGA	4	3	2	2	3	3
PLGA-HA	3	3	2	2	3	2
PDO	2	1	1	1	3	3

**1 tile is equivalent to about 6 months.*

Skin contact	Ease of use	Thermal resistance	Chemical resistance	Mechanical resistance	Resistance to fatigue
ABS	4	3	3	3	3
PC	3	4	4	4	2
TPE	1	3	3	1	5
PETG	4	3	4	3	3

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OUR SERVICES

Our customized support solutions

Discover our innovative solutions in 3D printing and co-development of medical devices. We offer a complete range of services, from design and prototyping to mass production, using cutting-edge technologies such as FDM, SLA and SLS. Our experts support you at every stage or for specific needs, from feasibility studies to prototype analysis, to guarantee high-quality results tailored to your requirements.

Parts modeling and simulation

Advanced software such as SolidWorks and Abacus are used to design and simulate your prototypes, ensuring their performance and reliability before production.

Tailor-made 3D printing filaments are created to suit specific needs, using polymers such as PCL or PLGA. You can customize the diameter (from 0.8 mm to 3 mm) and add unique functional properties, such as antibacterial or conductive capabilities, to perfectly match your projects.

3D printing: FDM, SLA and SLS

Take advantage of our FDM, SLA and SLS technologies to produce high-precision, durable and functional parts, tailored to your specific needs.

Performing biological tests

Our laboratory carries out in vitro tests (resorption, cytotoxicity) to assess the durability and performance of your materials under real-life conditions.

Advanced materials analysis

Our equipment, including gel permeation chromatography and a differential scanning calorimeter, enables us to analyze the mechanical and thermal properties of your polymers to optimize your products.

Co-development of your medical devices

6 key steps

Building on Lattice Medical's experience in developing implantable and resorbable medical devices for soft tissue regeneration, we invite you to discover our expertise in co-developing medical devices using innovative 3D printing solutions.

From initial design to production, we're with you every step of the way, transforming your ideas into working prototypes, right through to pre-production. With complete mastery of implantable materials and state-of-the-art technology, we offer you a personalized service that meets the highest standards of quality and performance.

Initial consultation

Feasibility study

Material selection

Design and first prototypes

Printing parts

Analysis

We can support you throughout the development of your medical device (MD), or only in a specific phase.

This starts with a confidential initial consultation, followed by a feasibility study to assess technical viability and draw up a quotation. We then advise you on the choice of materials, including our certified medical-grade filaments. We develop and prototype your designs, print your parts with the appropriate 3D technologies, then analyze their mechanical, thermal and biological properties in our laboratories to ensure compliance with regulatory requirements.

TO FIND OUT MORE

Would you like to find out more about our products or services?

Find out more on our website www.lattice-services.com!

Our filaments

Our services

Contact us