Ultimaker

Professional 3D printing applications

3D printing is a powerful tool for businesses

Product development

- Concept directions
- Shape and form
- Functional prototypes
- Look and feel

Manufacturing aids

- Jigs and fixtures
- Quality assurance
- Tool organizers
- Molds and patterns

End-use parts

- Custom one-offs
- Small batches
- Replacement parts
- Decentralized manufacturing

An Ultimaker 3D printer brings the power of reliable, repeatable prototyping and high–quality parts to wherever you need it.

Discover the stories of how engineers, designers, technicians, architects, and medical professionals are using this tool to shrink product lead times and achieve cost savings.

Ultimaker creates accessible and versatile products – 3D printers, software, materials, all with support when you need it – so it's easy to get started and focus on your job, without any complicated setup and training.

We believe that there should be no barriers to using 3D printing to help drive the success of your projects and business. Whether you are an expert or novice when it comes to 3D printing, Ultimaker is the ideal solution for a range of industries, from automotive, aerospace, or oil and gas engineering, to product design, manufacturing, architecture and medical research.

Architecture

- Concept models
- Massing studies
- Client presentations
- Master plans

Medical

- Surgical planning
- Patient communication
- Medical instruments
- Clinical training

Product development

Shrink lead times from weeks to days with fast iterations

Companies are always in a race to bring new products to market as quickly as they can. Rush the development of a product and it could mean missing what the customer needs; take too long and a competitor gets ahead.

With Ultimaker's fast and reliable FDM 3D printing solution, designers and engineers no longer face this dilemma. Test more iterations at almost no additional cost and go to market with confidence.

ABB Robotics

3D printed YuMi finger
New designs can now bypass all traditional stages of ordering and delivery, saving money and time..

External suppliers		Ultimaker 3D printers	
Time per part	2–4 weeks	Time per part	1–4 hours
Cost per part*	€450	Cost per part*	€75
Feasibility tests per month	1	Feasibility tests per month	5–6

**Including engineering time; the 3D printing material cost is negligible (€1). It takes from one to four hours engineering and one hour printing per finger. In total, 3D printing saves four weeks and €400 per finger.*

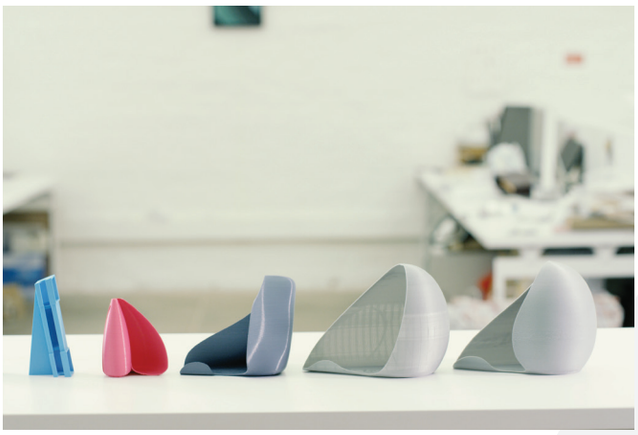
Rapid prototyping made accessible

Quickly swap a 0.8 mm print core into your Ultimaker 3D printer and prototype up to twice as fast as you would with a normal 0.4 mm configuration.

Learn more at ultimaker.com/products

"Compared to the traditional aluminum fingers that were very costly and took about five weeks for each iteration, the 3D printed designs cost almost nothing and took about an hour to create."

—**Guillaume Pradels**,
YuMi Product Manager at ABB Robotics



Concept directions

Choose an idea from a selection of concepts in the early design stages

Shape and form

Check size and proportions with a basic, quick model

Functional prototypes

Test as close to real conditions as possible to verify fit, function, and manufacturability

Look and feel

Gauge stakeholder reactions to the aesthetics and experience of a later prototype

Maximize production efficiency on a budget

In a manufacturing environment, time is money. With a 3D printer, jigs, fixtures and other tooling can be produced to almost instantly meet any demand on the factory floor.

This means quicker machine setups, less variation during assembly and fitting, secure part holding, and a smoother production process.

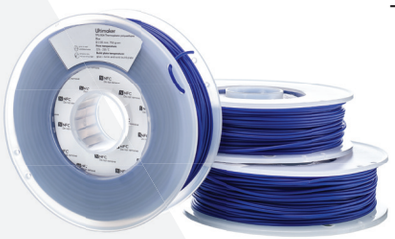
Volkswagen Autoeuropa

Wheels protection
Prevents damage during wheel positioning and assembly. Without this protection, scrap costs can be huge.

External suppliers		Ultimaker 3D printers	
Cost per part	€800	Cost per part	€21
Project duration	56 days	Project duration	10 days

3D print with engineering materials

Ultimaker's range of materials, including ABS, Nylon, CPE, PC, and TPU 95A, will help you find the right fit for any application.



Learn more at ultimaker.com/materials

"3D printing developments result in a 91% cost reduction and 95% reduction in tool development time. Ultimaker makes it possible to improve tool ergonomics by 28% and the final product quality by 35%."

—**Helena Trincheiras,**
Pilot Plant Engineer at Volkswagen Autoeuropa

Jigs and fixtures

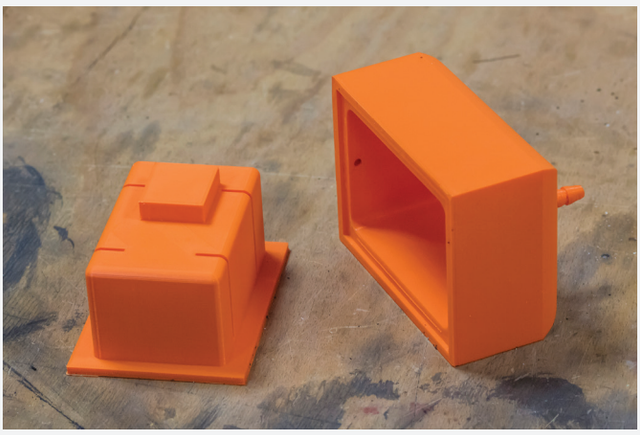
Ensure an efficient production process with strong, affordable tools, on demand

Tool organizers

Be lean and efficient with 3D printed organizers for working spaces

Quality assurance

Test quality and accuracy of manufactured parts with precise gauges



Molds and patterns

Integrate into the molding process with low-run injection molds or lost PLA casting

End-use parts

Streamlined and effective design to manufacturing solution

Companies can start building durable, low-volume, customized parts with no tooling cost or lead time.

With a wide range of materials, finishings, and accuracy that rivals injection molding, on-demand production can be tailored to your needs, anywhere.

Snow Business

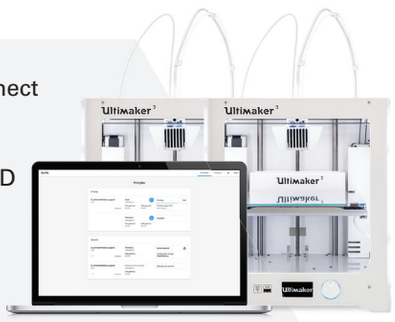
3D printed nozzle
With the Ultimaker, nozzles for these high-value snow machines can be printed in-house, saving considerable costs.

External suppliers		Ultimaker 3D printers	
Cost per iteration	£125	Cost per iteration	£2.50
Lead time	7 days	Lead time	7 hours

Save for a few pounds in filament cost, the nozzles can be printed at almost no cost in just a few hours. Note: these numbers relate to the iterative R&D process. When going into production, the cost per iteration of £125 for SLS service bureaus can be spread across multiple nozzles, likely shrinking the cost of SLS service bureaus to £25 per final nozzle.

Software helps you maximize uptime

Our free Cura Connect software solution enables you to manage multiple 3D printers from your desktop – perfect for small-batch production.



Learn more at ultimaker.com/software

"What we really needed was a technology that we could use on-site, that would be able to get models in our hands within hours. We bought our first Ultimaker for prototyping, now we use it for production."

—**Paul Denney,**
Head of Research at Snow Business

Custom one-offs

Bespoke, one-off projects suffer no cost penalty with FDM manufacturing

Small batches

Cost-effective, low-risk production for a small run or ramp up your first 100 parts

Replacement parts

Cut out supply chains and purchasing processes with on-site production of parts

Decentralized manufacturing

Immediately put your product in customers' hands by printing where they are

Architecture

Reduce reliance on time and labor-intensive model making

From evaluating early concepts to impressing a client and winning business, 3D models are central to how architects design and communicate.

Using an Ultimaker 3D printer in-house can shrink model-making times from months to days, and even print complex geometries that couldn't be made any other way.

MATT Architecture

Cityscape models
Using Ultimaker 3D printers, MATT Architecture increased the number of iterations and reduced the model-making time.

External suppliers		Ultimaker 3D printers	
Iterations per model	1–2	Iterations per model	3–4
Cost per model	£400	Cost per model	£15

It's difficult to do a direct cost comparison, as MATT Architecture print materials in a range of sizes. On average, however, print materials cost anything from 20 pence to £30.

Open to your choice of material

Ultimaker 3D printers have an open filament system, so you can include exotic materials with a ceramic, wood, concrete, or matte finish in your proposals.

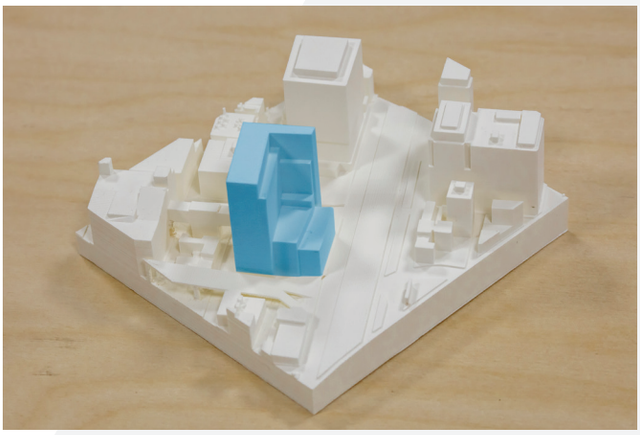
Learn more at ultimaker.com/ultimaker-3

"A 3D printed model is stronger and longer lasting. If we outsource the model making, the cost is much greater, and it takes manual labor. Generally, I choose to 3D print models because it allows me to achieve certain results that I would never be able to achieve using traditional methods."

—**Matt White,**
MATT Architecture

Concept models

Print several rough models of early designs and decide on the project's direction



Massing studies

See a building in its context, and quickly scale up a model with modular parts

Client presentations

3D printing can be combined with other techniques for a striking representation

Master plans

3D printing provides both fine detail and large volume for planning scale-models

Medical

3D models bring scans to life for added certainty and preparation

With 3D printing, medical professionals can give patients the personalized healthcare they expect as well as improving accuracy and outcomes.

For example, by combining 3D printing technology with scan data, surgeons can see what is needed before they begin a procedure, meaning less time under anaesthetic for the patient and reduced costs from operating theatre time.

Dr Boyd Goldie

3D printed bone models
Dr. Goldie reduced the time involved with bone model preparation from weeks to hours while saving significant costs.

External suppliers		Ultimaker 3D printers and proprietary software		Ultimaker 3D printers and Ultimaker Cura software	
Cost per model	$850	Cost per model	$345	Cost per model	$7
Time per model	2 weeks	Time per model	5 hours	Time per model	2.5 hours

3D print complex, organic shapes

Ultimaker PVA water-soluble support material gives an excellent surface finish on organic geometries, with minimal post-processing to remove it.

"3D printing has utterly changed my workflow. As a surgeon, it helps me plan my operation and gives me a better understanding of what I'm dealing with so I don't have any surprises in the operating room. With modern radiology software, you can see a virtual model on-screen, but there's nothing like holding a model in your hands."

—**Boyd Goldie,**
Consultant Orthopedic Surgeon, MBBS, BSc, FRCS, DHMSA

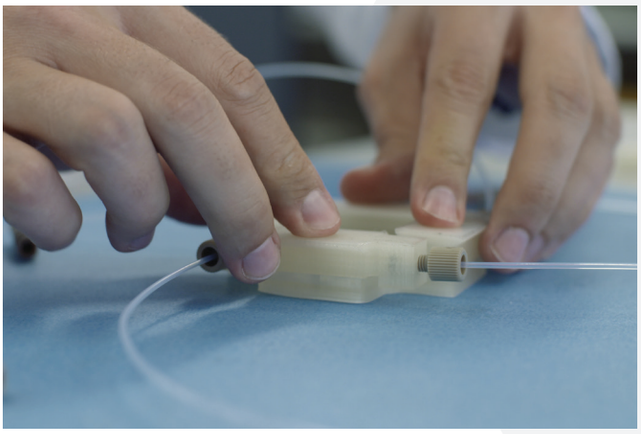
Learn more at ultimaker.com/materials

Surgical planning

Know what to expect before entering the operating theatre

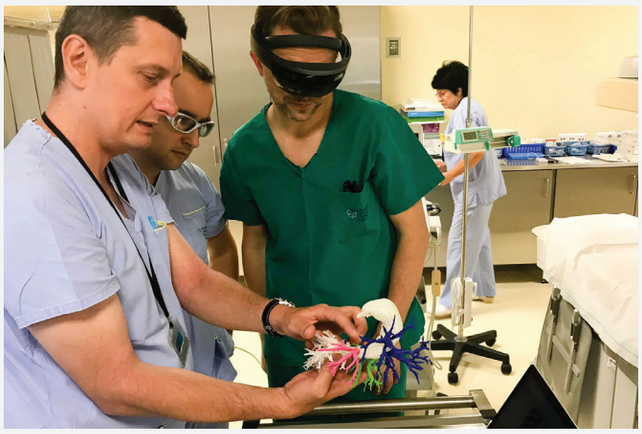
Patient communication

Turn patient scans into models they can see, hold, and understand



Medical instruments

Prototype medical and research devices, or produce assistive tools when required



Clinical training

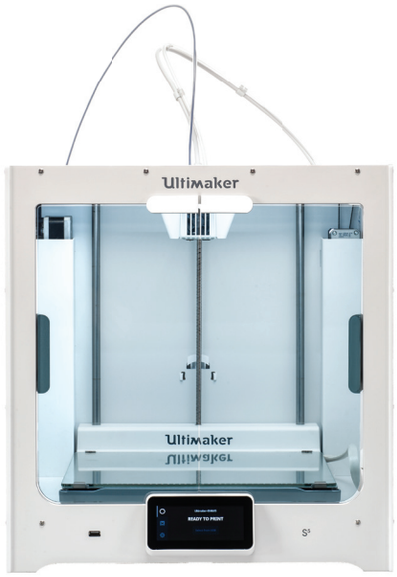
3D print anatomical models to train teams and improve results for patients

Disclaimer: Ultimaker 3D printers are designed and built for fused deposition modeling (FDM) with Ultimaker engineering thermoplastics within a commercial/business environment. The mixture of precision and speed makes the Ultimaker 3D printers the perfect machine for concept models, functional prototypes and the production of small series. Although we achieved a very high standard in the reproduction of 3D models with the usage of Cura, the user remains responsible to qualify and validate the application of the printed object for its intended use, especially critical for applications in strictly regulated areas like medical devices and aeronautics.

The complete 3D printing package, trusted by professionals

Ultimaker's range of accessible and reliable desktop 3D printers is used by hundreds of thousands of engineers, designers, architects, and medical professionals worldwide.

Every day they depend on our integrated solution of 3D printers, powerful software and industrial-standard materials to deliver quality parts and prototypes, and help them work more effectively.

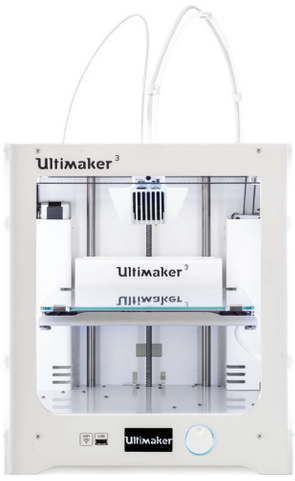


Ultimaker S5

- Bigger build volume combined with powerful dual extrusion
- Enhanced first-layer adhesion and reliability
- Intuitive touchscreen makes setup and operation simple

Ultimaker 2+

- Adaptable, reliable, and user-friendly
- Control speed and detail with swappable nozzles
- Smooth prints with its unique airflow design



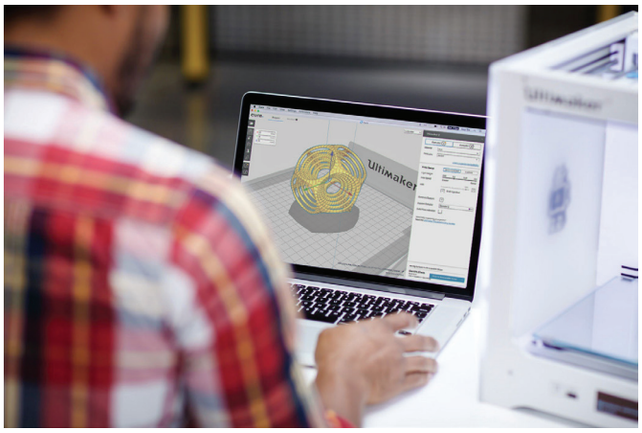
Ultimaker 3

- Dual extrusion lets you print in two materials or colors
- Print complex designs easily with water-soluble support
- High uptime and fast changeover between prints

Learn more at ultimaker.com/products

Software to fit your workflow

- Ultimaker Cura is the world's leading 3D printer software with over 2 million users
- Prepare your print, then monitor your 3D printers with Cura Connect
- Our software is free and easy to use, with built-in, tested recommended settings



Optimized, industrial-grade materials

- Preconfigured profiles in our software ensure the highest quality results
- Strength, flexibility, heat resistance—choose the properties to suit your needs
- Our full material range: Tough PLA, PLA, Nylon, ABS, CPE, CPE+, PC, TPU 95A, PP, PVA, Breakaway

Global, certified support network

- Expert support in your language and time zone from our trained and certified partners
- Spare parts always in stock, plus a local warranty means you're well protected
- Get instant help from our online community of thousands of experts

Ultimaker

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