BUILT FOR BUSINESS

Leapfrog
3D Printers

QUICK INDICATOR


BOLT
PRO
Leapfrog
3D Printers
BOLT 3DPRINTER

INTRODUCTION

LEAPFROG 3D PRINTERS

Leapfrog 3D Printers was founded over 5 years ago and has been aiming for high quality and innovation ever since. Our 3D printers are meant to surpass the expectancy of their users in terms of print quality and ease of use.

The pace of work has been increasing over the last years with the advancements of technology and with information readily available. This increase can be directly translated to a decrease in time for development due to shorter lead times.

BOLT PRO

To optimise your workflow and stay ahead of the game, software and hardware are combined into the Bolt Pro to drastically improve your productivity and development. The user is central on the Bolt Pro and the intuitive software gives you many utilities which makes operating the Bolt Pro easy. The hardware is robust and durable, and the technology used is state-of-the-art. This provides for the perfect tool for a better workflow, faster production and easier workload.

The Bolt Pro is the answer to modern product development

FORM FREEDOM

FOR PRINTING:

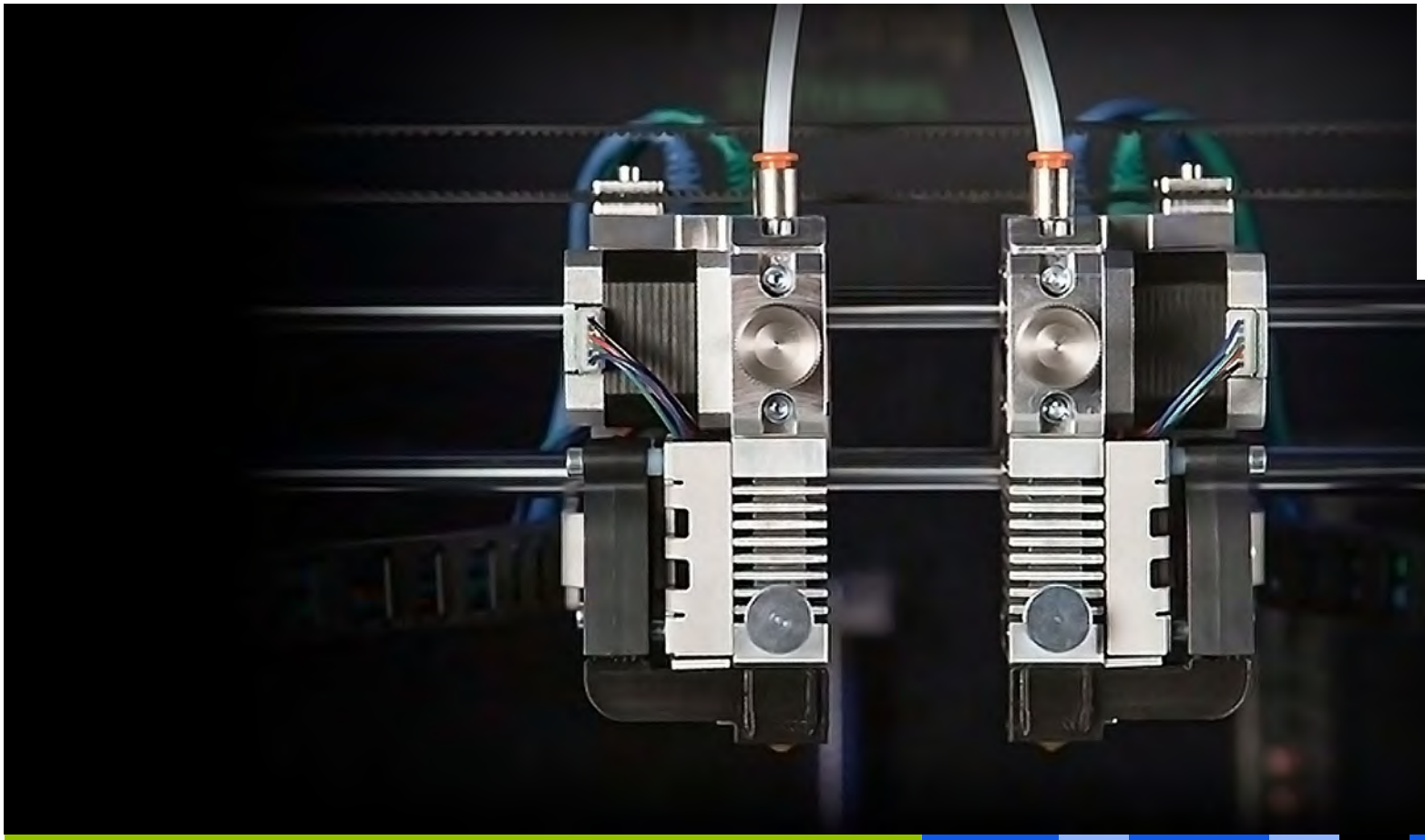
- Print filaments with 360°C
- Mix any filament with IDEX
- Go large with build volume
- Swappable print beds
- Double production with sync-mode

FOR THE USER:

- Access and control from anywhere (webcam)
- Maintenance tools
- Multi language
- Automatic updates
- On-board storage

FOR RELIABILITY:

- Direct Drive
- High grade CNC milled parts
- Special engineered print heads
- Linear axis guides
- Control printing with all enclosure



INDEPENDENT DUAL EXTRUDERS

RELIABLY PRINT COMPLEX PARTS WITH ANY MATERIAL

Unrestricted 3D printing

3D printing is meant to be unrestricted and should give you limitless possibilities in form, function and filament. The Bolt Pro provides an unrestricted 3D printing environment by letting you print with any type of filament. And each filament type gives different properties so combining different properties into one print, broadens the horizon for new innovations.

Independent Dual Extrusion

Independent Dual Extrusion (IDEX) is a technology in which two extruders can move independently from each other. In dual color or dual material prints, the inactive head is moved to the side to remove any influence due to temperature or oozing. In addition, the independent heads allow for two parts to be printed at the same time effectively doubling the Bolt Pro's production capacity.

IDEX is the solution for clean dual filament prints but it also allows for two simultaneous single filament prints, effectively increasing the production speed of the Bolt Pro twice as fast.

High-temperature printing

Each type of filament has different printing requirements and a critical requirement is the nozzle temperature of the print head. The Bolt Pro's optional high-temperature (HT) nozzle increases the maximum print temperature to 360 °C allowing the machine to print a wide range of industrial materials.

Different nozzles can be swapped within seconds and without tools. So this means that the Bolt Pro is always ready to print any material you wish to built with, like PLA, Nylon or Peek and Polycarbonate.

Accurate filament control

The Bolt is very suitable to print with flexible materials such as Leapfrog Flex creating rubber like and flexible 3D prints. These materials need more guidance and control when feeding it through the nozzle. In the Leapfrog Bolt, this precise control is achieved by placing the filament drive right above the filament in an arrangement called Direct Drive. In addition, the patented filament pressure adjustment knob allows the user to select the exact right pressure to correctly feed the filament.

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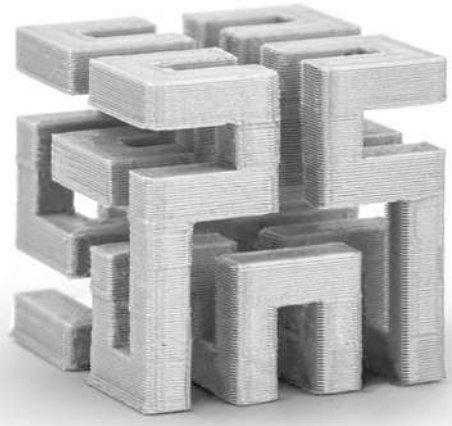
MATERIALS

Engineering PLA

Easy - Strong

Creating great products is an experience which brings great fulfillment. The fastest and easiest way to create products with 3D printing is using the right materials which have great printing properties. PLA is a highly popular 3D printing material due to its ease of printing, but a major drawback is its lack of strength and durability. Leapfrog is proud to supply Engineering PLA – an enhanced form of PLA which is easy to print and at the same time is strong and highly durable.



Polypropylene

Chemical inert

Polypropylene, or PP, is a plastic which is used in many industries. Unfortunately this material has seen limited application in 3D printing because it requires a direct drive and high temperature capability to be printed correctly. Supplying both, PP can be successfully printed on the Bolt Pro. PP is chemically inert making it useful for a range of industrial applications, and its strong and slightly flexible finish sets it apart from other 3D printing filaments.

Flex

Flexible - high impact

Being able to print many types of rigid materials is incredible, but non-rigid flexible materials also exist including Leapfrog Flex. These rubber-like prints can provide for excellent shock absorbing solutions or more movable connections. Printing flexible materials requires a direct and controlled feed of filament through the nozzle, which the Bolt Pro provides.

Scaffold

Water soluble

Support structures are required for many complex 3D printed forms. Soluble support materials that dissolve in water are particularly useful. Leapfrog offers Scaffold, a material that is more easy and reliable to print compared to PVA and has great support properties. Specifically useful for supporting engineering PLA, supporting your prints with Scaffold on the Bolt Pro gives you great design freedom.

PRINT BED AND BUILD VOLUME

LARGE BUILD VOLUME

To reduce the limitations for 3D printing, the print volume of the Bolt Pro is large. Almost 22 liters of print bed can be used for large prints or multiple smaller prints. The large bed can also be used for production by creating an instant duplicate in sync mode printing. This means that the room for creation is provided, to allow you to create your print in the size you need.

INSTANT BED REPLACEMENT

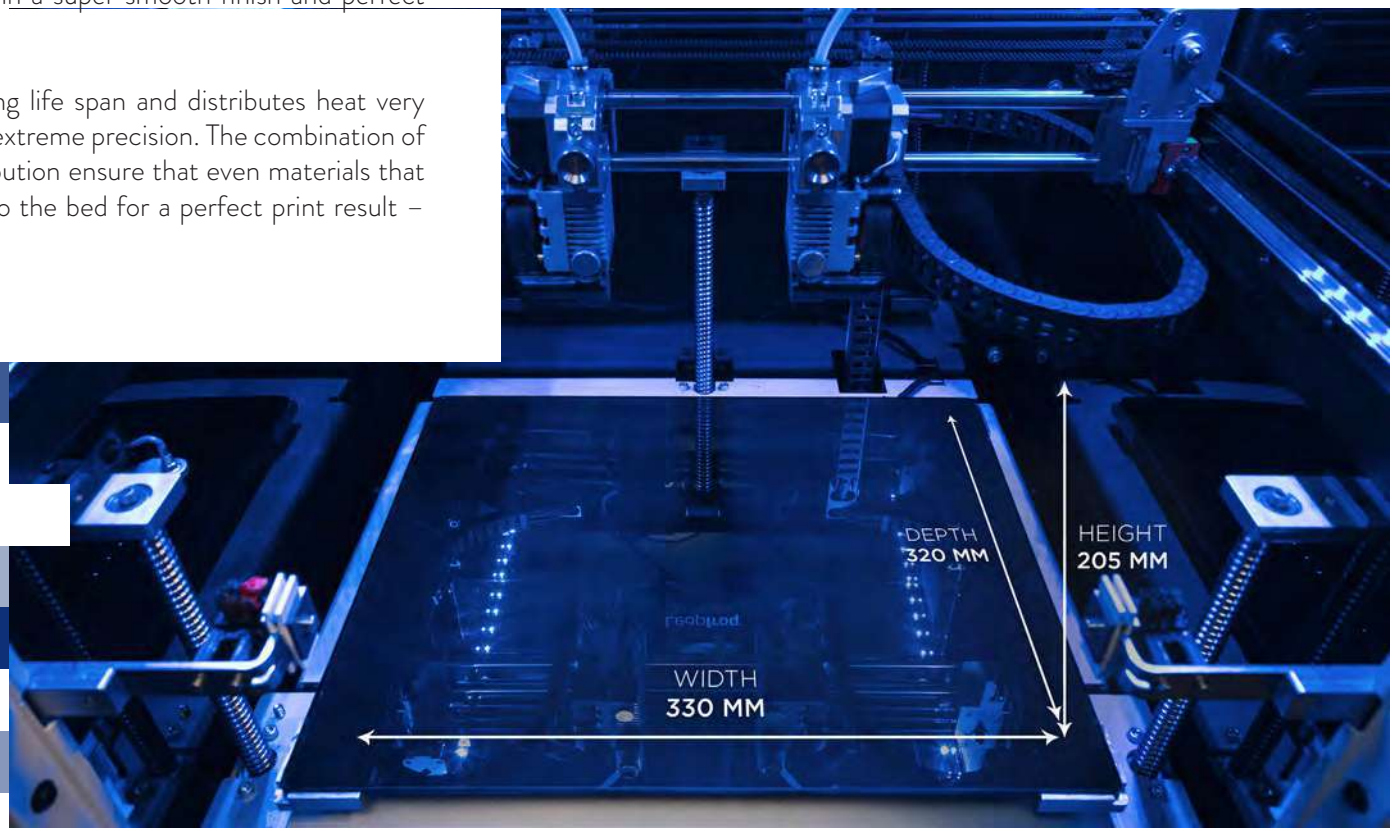
When printing professionally, machine uptime is everything. Losing time between prints means losing productivity. Therefore the Bolt Pro is now fitted with instantly replaceable beds. When your print is complete, don't worry about taking off your print and cleaning the bed before the next print goes on. The Bolt Pro print bed snaps in place using magnets and once your print is done replace it with a fresh one in seconds. Immediately start your next print within minutes. Whether you are making prototypes or running mass production, this feature will greatly improve your productivity.

ADVANCED PRINT BEDS

Using the right print bed has a significant impact on product quality. Especially when making large objects, having an ultra-flat bed with great product adhesion is paramount. Start making high quality prints, every time. Based on the input from our most demanding customers, we have come up with two different beds: a Borosilicate print bed and a Granite print bed.

Borosilicate is a type of glass made from silica and boron trioxide. This material has very low coefficients of thermal expansion. Even when heated, our borosilicate glass bed stays extremely flat. This allows for perfect printing of your parts on the heated bed, resulting in a super smooth finish and perfect adhesion

Granite is is extremely durable for a long life span and distributes heat very well. Our granite beds are ground flat to extreme precision. The combination of extreme flatness and perfect heat distribution ensure that even materials that show significant warping stay attached to the bed for a perfect print result – every time.



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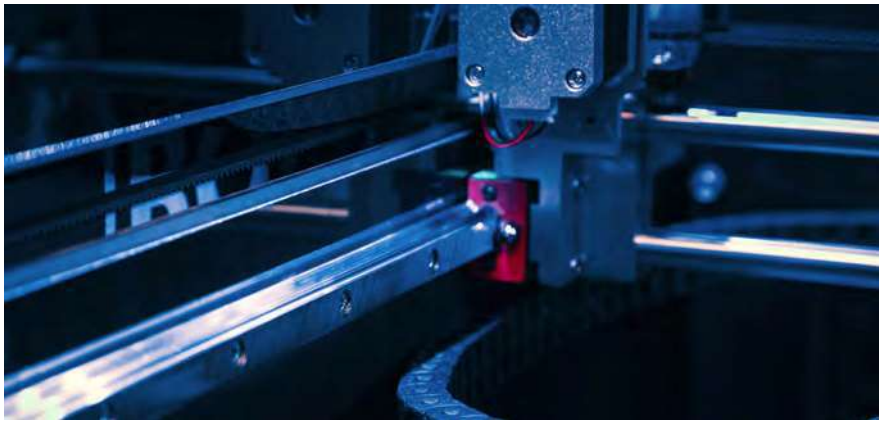
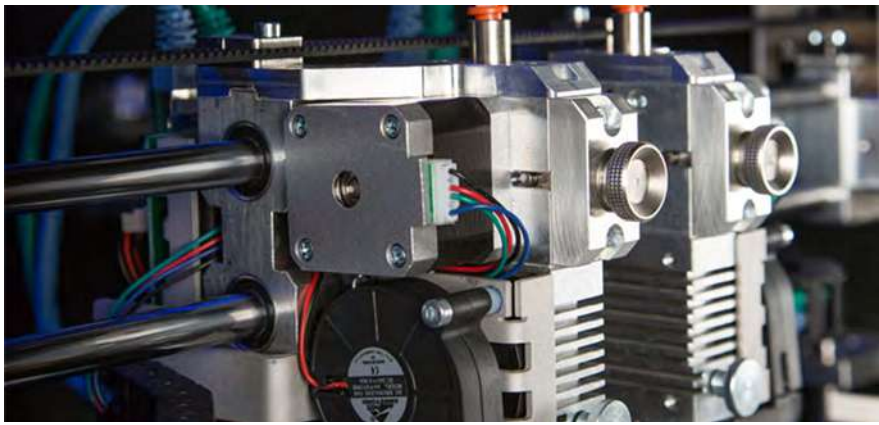
BUILD AND FULL ENCLOSURE





A machine designed by engineers for engineers

When we set out to design the Bolt Pro our aim was to make a machine, not an electronics device. This design philosophy has made a tremendous impact on the product. Many 3D printers are made from plastic to keep production costs low. The Bolt Pro frame is made out of 5mm thick laser cut aluminum sheets. This makes our machine heavy at around 65kg, and this weight testifies towards its quality. All functional parts, such as the head carriage, are made out of metal instead of plastic. We are especially proud of the advanced and strong linear guides that move the heads in the Y-direction; these high quality machine parts ensure perfect head positioning, reduce movement noise and keep the printer operating reliably year after year.

Use in the office without any fumes

3D printing involves the heating of plastics to a temperature close to their glass transition temperature. As a result, fumes may be generated in the process; especially when using advanced materials. When open 3D printers are used in the office, these fumes may be uncomfortable at best or even toxic at worst. The Bolt Pro has a full enclosure that keeps the fumes in the machine. In addition, an activated HEPA carbon filter ensures that you can safely work with the Bolt Pro. Even if it is placed right next to your workstation.

Constant temperature for great prints

During printing, the extruded filament is cooled down when it leaves the extruder to form your 3d print. And with printing with certain materials such as PLA, the material should be cooled very quickly to avoid deformation. However, for many advanced materials it is better to have a gradual cooling process to improve layer adhesion and avoid warping. The Bolt Pro's build volume is fully enlosed when the lid is closed. This ensures a constant and elevated print chamber temperature allowing you to make the strongest high quality parts.

14 SOFTWARE AND UI

Software meant for the user

Tools are meant to enable a person to something great. So using a tool like a 3D printer shouldn't be a burden. As a user, you should be free in the way you access your machine and the machine should think for itself wherever possible. The Bolt Pro has a large 7" touchscreen with the Leapfrog User Interface behind it. The User Interface has been engineered for effortlessly controlling the Bolt whether you are printing or servicing your Bolt Pro.

Remote connectivity

The User Interface can connect to your personal network and internet using LAN cable or WiFi. This will grant you access and control of the Bolt via your preferred personal device with a browser. Upload your print file to the on-board storage and easily start the print remotely. With the built-in webcam you can keep an eye on the progress and the time lapse function gives you more insight on the print process when it's finished.

Self improving

Our software engineers are continuously improving and enhancing our software with bug fixes, user requests and enhancements. Your Bolt Pro can find, download and update any software updates automatically. This keeps your Bolt Pro up to date with the latest features and improvements at any time.

Smart and protected

The Bolt Pro can be used by different types of disciplines and users. To guarantee control and safety on the use for personnel, each user can be assigned their personal set of rights indicating what they can and cannot do on the printer. To further ensure safety, printer maintenance is guided and controlled through the user interface. To smartly conserve energy, there is an auto-shutdown feature which can turn the printer off automatically when the print is complete.


TOUCH SCREEN
MULTIPLATFORM
AUTOMATIC UPDATES
WIFI
WEBCAM
ONBOARD STORAGE
USER PRIVILEGES
AUTO SHUTDOWN
MAINTENANCE SOFTWARE
BOLT
PRO
BOLT 3DPRINTER

TESTIMONIALS

CROCS™
DESIGN TESTIMONIAL

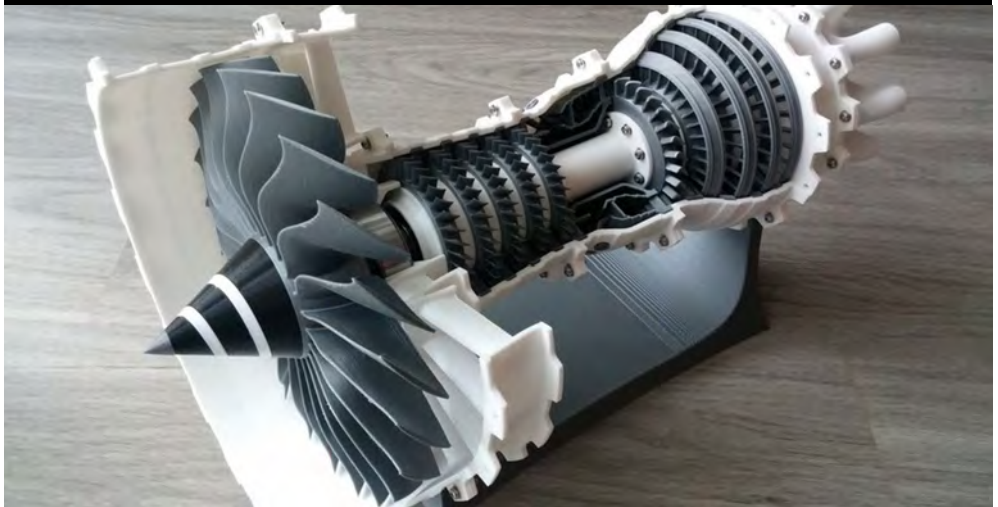
Luca Faggin
Europe Innovation Manager Crocs
– The Innovator

"Ever since the launch of our first clog we have been innovating, engineering and improving our footwear. In order to stay ahead of our competition, we must keep developing new products quickly. This is why we have chosen the Bolt 3D Printer for our prototyping department based in Italy."

AIRBUS
ENGINEERING TESTIMONIAL

Thiago Medeiros Araujo
Consultant Research Engineer Airbus
and founder of Freeform Printing LTD

"Being a faithful user of the Leapfrog 3D Printers Thiago was particularly interested in the Bolt because of the advanced software features like mirror mode and sync mode but more so because of the Independent Dual Extruders (IDEX). The IDEX gives the user a much wider use of materials. 'Leapfrog offers a printer that is ideal for productivity and quality of simple 3D printed parts."



FORT
ENGINEERING TESTIMONIAL

Lorand
Fort Mechanical Engineer

"Innovation and speed are key, especially for a Mechanical Engineer in a production services company specialized in outsourcing. For their prototyping and development jobs they use the Leapfrog Bolt. "The wide variety of materials that can be used with the machine, together with its easy to use software opened up new opportunities for us and reduced the production time significantly"

ANDUN
ENGINEERING TESTIMONIAL

Angus Holdsworth
Managing director of Andun

"3D printing and BIM are two technologies that are changing the world of construction and demolition industry. BIM is the process of creating a digital 3D model of a project. By prototyping a 3D model of the specific machine or structure, they create a tangible and very intuitive solution towards their demolition project which makes it easier for their customers to comprehend."

3D PRINTING.COM

3DPrinting.com was founded in 2011 and is a leading source about everything related to 3D Printing. In their lab the team has reviewed essentially every main printer on the market. With a large international reach, this independent company gives honest feedback out the machines they test - the good, the bad and the ugly.

In May 2017 put the Leapfrog Bolt through an extensive test over the course of four weeks. The full report can be found on: https://www.3dprinting.com/reviews/leapfrog-bolt-review/.

INDEPENDENT REVIEWS

The following key findings are quoted directly from the report:

Perfect for printing specialty materials
To print specialty filaments there are a few required specifications you need and a few nice to haves when it comes down to the hardware of your printer. You'll need a nozzle that can reach a minimum temperature of at least 572 °F / 300 °C. You also need a heated bed that can reach a reasonable temp. You probably want a printer with a closed chamber and last but not least a direct drive filament feeder if you like to print the real flexible materials. The Bolt meets all these requirements.

Extruder priming and wiping
An often underestimated feature is the way a 3D printer handles extruder priming / wiping. Especially when a 3D printer has multiple extruders. When printing a multi-color / multi-material object you don't want the layers to 'bleed' into each other. You also don't want to see blobs and other irregularities on the objects surface. Leapfrog did a great job solving these issues with their wipe / priming system

First prints
The Bolt is pre-calibrated and ready to print, so from unboxing to first print took us about 10 minutes. The setup & control is really intuitive. Both the 7 INCH touchscreen display as well as their custom built OctoPrint UI add up to the overall usability.

CONCLUSION

Definitely one of the best printers we've ever tested. A true workhorse that will bring your prints to the next level.

Make:

The following key findings are quoted directly from the report:

The Bolt is a powerful device with industrial mechanics and proved to be easy to use in the test. The dual extrusion mode works well, thanks to the enclosed installation space, the heat output of the extruders (up to 360 degrees Celsius) and the construction platform (up to 90 degrees Celsius), the machine is suitable for a wide range of materials. Among other things, it should also be possible to print a workpiece made of ordinary plastic and to support its overhangs with the water-soluble material PVA, which is washed away afterwards.

If you need larger quantities of objects printed from a material, the sync mode will be appreciated because the parallel printing of two work pieces will halve the time per copy - with printing times of often a few hours, this is no small advantage.

The Bolt measures 72.3 cm × 83.1 cm × 80.1 on the outside; the device weighs more than 60 kilos and could only be lifted on the table with combined forces. The machine is comfortably accessed via a large touch screen. An update during the test period came automatically via LAN connection to the device, which did not have to be connected via USB to a computer during our entire test procedure. All maintenance procedures as well as material changes can be handled comfortably by your fingertips. After the mentioned automatic update, the interface could be translated to German on request.

CONCLUSION

This all has its price, of course, and the Bolt is four-digit in the middle range. Nevertheless you get a lot of 3D printer per euro with this machine.

MAKE Magazine is the leading print magazine for makers, DIY projects and bending technology to your will. For several years their 3D printer buying guides make or break 3D printing companies. MAKE takes extreme pride in their independence, they don't even allow printer manufacturers to discuss advertising before the review is finished. In March 2017, they have put the Bolt to the test. Their findings are highly relevant to the Bolt Pro since that machine serves as a further improvement to that platform.

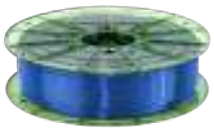
The article was first published by the German edition of MAKE and can be found on:
https://heise.de/-3643157

the English translation is provided by Leapfrog:
https://www.lpfrg.com/en/make-magazine-bolt-review/

MATERIALS LIST AND INFORMATION

LEAPFROG MAXX NAME	PLA	ABS	HIPS	SCAFFOLD	FLEX
					
Unique property	made from corn	strong	soluble (limonene)	soluble (water)	flexible
Recommended for	modelling	structural parts	support (ABS)	support	development
Print properties					
Extruder temperature °C	205-215	245-255	235-245	220	210-255
Bed temperature °C	45	80	115	20-90	20-50
Common print speed	high	medium	slow	slow	slow
Warping	low	high	low	low	none
Layer bonding	high	medium	medium	medium	very high
Recommended printers setup	standard	heated environment	standard	dry filament	direct drive
Mechanical Properties*	*The values should be used as a reference to each other. Other aspects, like the quality of the print en print environment can give other results.				
Strength*	medium	high	low	low	medium
Flexibility	medium	medium	low	low	very high
Stiffness	high	high	medium	medium	low
Brittleness	medium	low	medium	medium	low
Tensile strength	high	medium	low	low	medium
Impact resistant	medium	high	low	low	high
Chemical resistant	low	medium	low	low	medium

This information can be used as a guideline. Your personal experience my be different.

PET-G	HYBRID	CARBON	NYLON	POLYPROPELENE	ENGINEERING PLA
					
recycled	FDA approved	stiff	resistant	chemical inert	strong
prototyping	innovation	mechanical parts	mechanical parts	research	mechanical parts
240-250	240-260	240-250	240-250	170-205	205-215
50	60-70	80	80	60	45
medium	medium	high	medium	slow	slow
low	low	low	high	high	low
medium	high	medium	medium	high	high
standard	standard	durable nozle	dry filament	heated environment	standard
medium	medium	high	very high	high	high
medium	high	very low	medium	high	medium
medium	medium	very high	high	medium	high
high	low	very high	low	low	medium
medium	medium	high	very high	medium	high
medium	high	high	high	medium	medium
high	high	medium	high	very high	medium

BOLT PRO OPTIONS

BOLT PRO

€6.499,00

LIVE 3D PRINTER TRAINING

Live training for your 3D printer

+€999,00

SPECIAL HOTEND OPTIONS

We have the following hot-end sets available:

- Standard hotend
- High temperature hotend
- High flow extrusion 0.5mm
- Tool steel hotend for abrasive materials

+€300,00

LEAPFROG BOLT CABINET

This Bolt cabinet is designed for functionality, providing a slide our table top and enough room to store numerous supplies like filaments, 3D Spray and other tools to keep nearby.

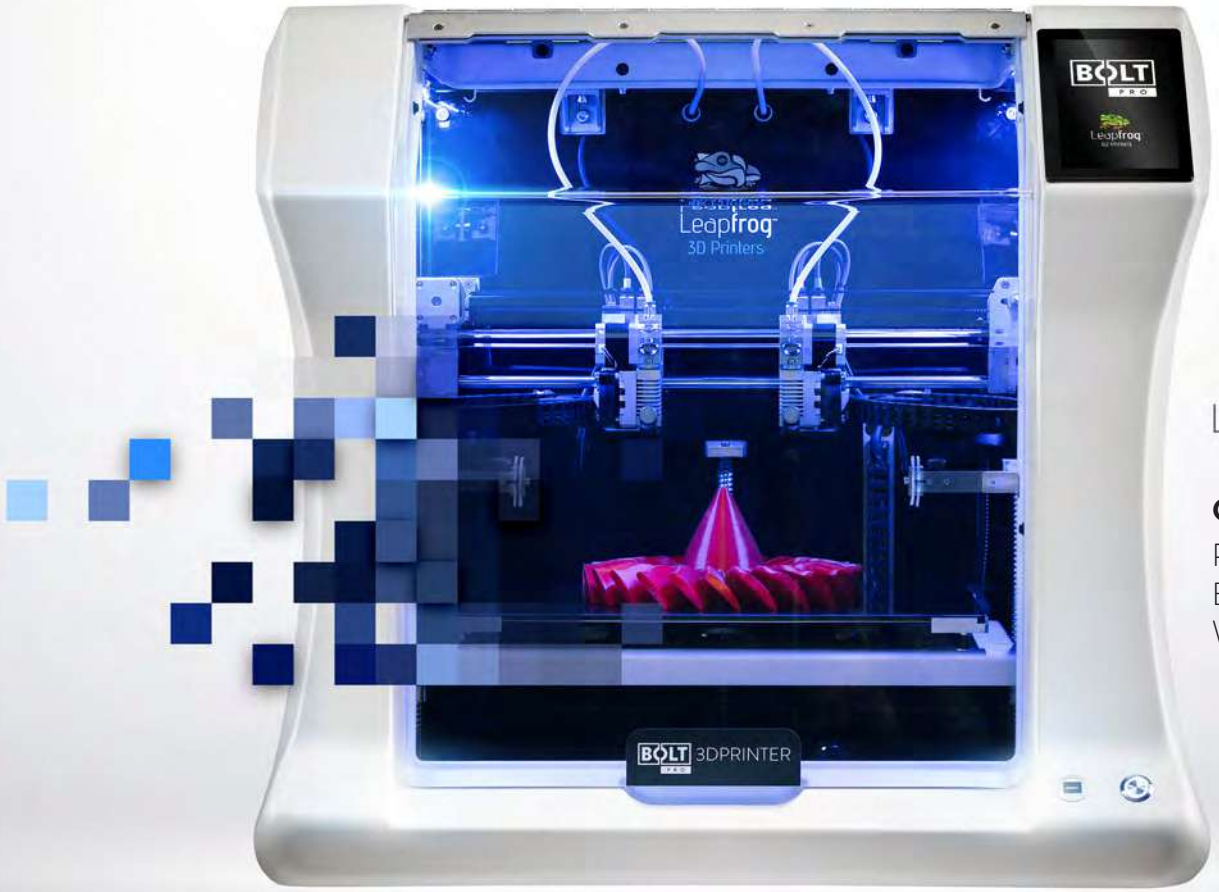
+€499,00

EXTENDED WARRANTY

This product provides the costumer an additional year of warranty on the Leapfrog Bolt.

+€749,00

BOLT PRO



Leapfrog
3D Printers

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YOUR 3D PRINTER SOLUTION

LEAP FORWARD