3D Printing

Ultimaker

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Full range of 3D Printing products available at:

www.rapidonline.com

3D Printing Guide

Designing a model

Don't fall into the trap of merely demonstrating the process by downloading and printing files from the internet. 3D printers can form an invaluable part of the design process, but you will need to be able to create 3D models using one of the many pieces of 3D CAD software that exist on the market if you are to get the most from your printer.

The good news is that the software doesn't have to cost anything. There is a wealth of CAD tools available that are free to use and that will give you all the features that you will ever need. The other good news is that the days of needing high-powered workstation computers for CAD are also a thing of the past which means you have probably already got everything you need to start using this kind of software in your school.

If you have no CAD experience at all, Tinkercad is a great place to start. It runs in your browser window and allows you to "borrow" other Tinkercad users projects and modify them, which is a great way to see how others create 3D models and work your way up to creating your own designs from scratch. For those that fancy something a bit more high-end, have a look at Fusion360 – industry-level CAD software which still has a shallow enough learning curve to make it accessible to novices.

www.tinkercad.com

www.autodesk.com/education

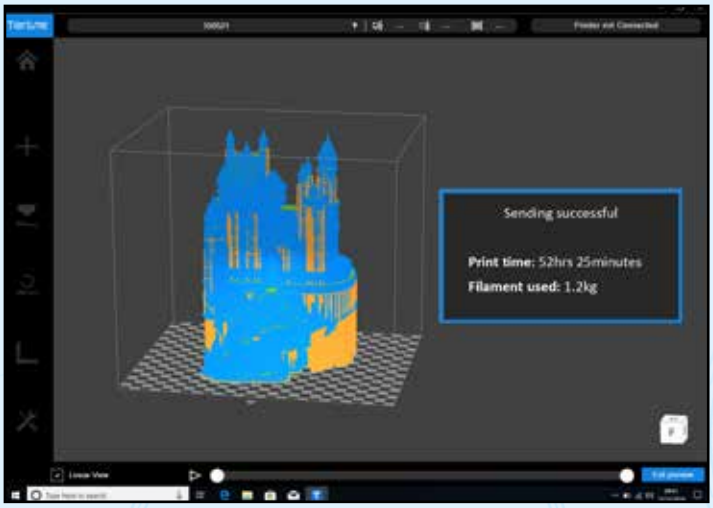
3D printer comparison chart

Model	Order Code	Price (exc. VAT)	Build Volume (mm)	Layer Thickness	Heated bed	
UP 300	25-0233	£1884.07	205 x 255 x 255	0.05 to 0.4mm	Yes	
UP BOX + 3D	25-0202	£1039.50	255 x 205 x 205	0.05 to 0.4mm	Yes	
Dremel 3D45	25-0536	£1385.99	150 x 255 x 170	0.05 to 0.3mm	Yes	
Flashforge Adventure 3	25-0142	£300.25	150 x150 x 150	0.05 to 0.4 mm	Yes	
Flashforge Creator Pro 2	25-0144	£683.90	200 x 148 x 150	0.05 to 0.4 mm	Yes	
Flashforge Guilder IIs High temperature version	25-0145	£1466.64	280 x 250 x 300	0.05 to 0.4 mm	Yes	
Flashforge Creator 3	25-0146	£1838.50	280 x 250 x 200	0.05 to 0.4 mm	Yes	
Flashforge 4	25-0147	£733.95	280 x 200 x 250	0.1 to 0.4 mm	Yes	

Time

The process of 3D printing is quite slow, especially when using the extruded plastic filament style machines which are the type most commonly used in schools. If you are creating a particularly large piece, it's not unheard of for prints to take 20 hours and with a class of 20 students in a D&T workshop, you could be looking at weeks of print time to get through everybody. Because of this, it's important to get your students to design objects that can be 3D printed in a set time frame.

The Airgineers Micro Drone project is excellent for this – frame designs can usually be printed in less than 2 hours.



Make parts, not entire objects

Once you have mastered CAD, it's tempting to make some extremely complex models to print. However, 3D printers lend themselves to making parts much better than making entire objects. For example, if you were making an architectural model of a building, rather than trying to 3D print the entire design, use laser or hand cut modelling board for large flat expanses like walls, but use 3D printed parts for items such as corbels, buttresses, staircases or other intricate shapes.

Think about the process of 3D printing when you are deciding what is the best tool for producing your part. To minimise post-production work, you want your model to require as little support material as possible which can be helped by choosing the optimal orientation on the bed when printing the part or minimising the number of overhangs where the angles are greater than 45 degrees, since most printers can happily print 45 degrees or less with no support material at all.

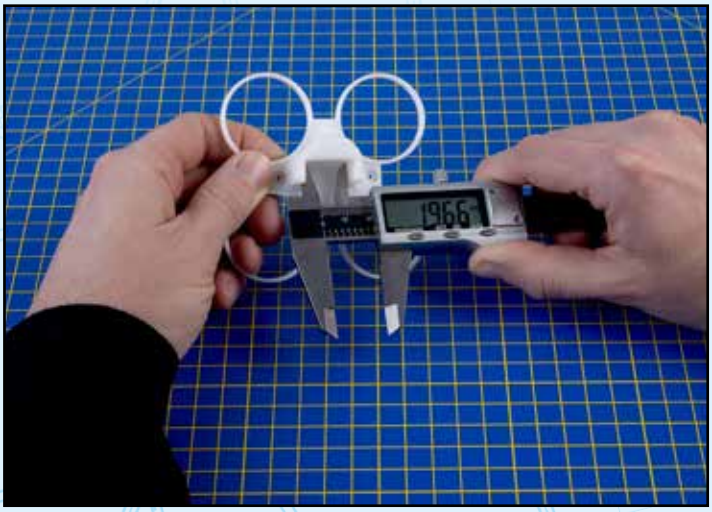
A question of capacity

When selecting a 3D printer, the vast ranges of different machines and specifications can make choosing the right one a daunting task. One of the factors that needs to be considered is the build volume which controls the maximum size of object that you can produce. Printers with a bigger build volume tend to be more expensive but bigger is not always better, especially in a classroom environment. Sometimes, having a larger number of smaller machines can be more beneficial than one large one because whilst you can place lots of different models on a large bed to be produced at the same time, you need to wait until all the models have finished printing before the students can get their hands on their designs. Why is this a big deal? Because design is always an iterative process and you probably won't get it right first time. By having a greater number of smaller machines, you maximise the amount of availability for starting new prints which means students can get their designs manufactured as soon as the next iteration is ready.

The UP Mini 2 is perfect for this. At £465, you can have three machines and plenty of spools of spare filament for less than the price of a larger machine like an Ultimaker 2+.

Get to know your 3D printer

Make sure you experiment with your machine so that you know how it is going to perform. This knowledge will help you to give good advice to your students when they are designing parts. How much shrinkage will they need to accommodate? What is the smallest wall thickness it can reliably print? It's also a good idea to have a few ready-made example models which can be used to demonstrate how long a print of a given size is likely to take.



	Filament Material	Connectivity	Fully Enclosed	HEPA Filter	Calibration
	ABS/PLA/Nylon/Flexible	USB, WiFi, Ethernet, USB memory stick	Yes	Yes	Automatic
	ABS/PLA/Nylon/Flexible	USB, WiFi, Ethernet, USB memory stick	Yes	Yes	Automatic
	PLA/ECO-ABS/Nylon	USB, WiFi, USB memory stick	Yes	Yes	Manual
	PLA/ABS	USB Disk/ WIFI/ Ethernet	Yes	No as an assembly part	Yes
	ABS/PLA/PVA/HIPS	USB cable, SD card	Yes	No	Manual
	ABS/PLA/PC/PA/HIPS/ASA/PETG/ PA-CF/PA-GF/PAHT	USB Cable / U Disk / Ethernet/WIFI	Yes	Yes	Automatic
	PLA ABS/PA/PC/PVA/HIPS/PETG/ Wood/ASA	USB Disk/ WIFI/ Ethernet	Yes	Yes	Automatic
	PLA/ ABS/PC/PETG/PLA-CF/PETG-CF	USB/ WIFI/ Ethernet	Yes	Yes	Automatic

FLASHFORGE® 3D PRINTER

ADVENTURER 3

DESKTOP MINIMALIST 3D PRINTER

Adventurer3 is the best choice for family, school, workshop, and 3D printing beginners. The friendly interface design and easy-to-use powerful functions make 3D printing easy.

KEY FEATURES

- Minimalist Design
- Detachable Nozzle
- Removeable Flexible Platform
- 150x150x150mm Print Volume
- Filament Detector
- ABS Support Filament
- Touch Screen Operation
- Cloud Print
- 45 db Ultra-mute Printing

ONLY
£300.25
ORDER CODE
25-0142

Tiertime

UP300

The Tiertime UP300 3D printer has been designed for users demanding a large build volume and consistent performance across different materials.

Each machine is supplied with three different extruders, each optimised for a different type of material meaning each print can be completed without compromise.

- 205x255x225 build volume
- Heated bed
- Automatic nozzle height detection and calibration
- 0.05mm layer thickness
- Includes three extruders for optimum material compatibility
- Colour touch-screen
- USB, WiFi, LAN and USB stick connectivity
- Includes roll of ABS filament, tools and cables

£1884.07
Order code 25-0233

fFully enclosed design with integrated HEPA filters which are strongly recommended for use in a classroom environment.

Spare Parts for UP 3D Printers

A range of genuine spare parts to keep your UP 3D printer in excellent working order.

- See Technical Details for applicable models

Type	Applicable model(s)	Order code	1+
* See Technical Details – visit **rapidonline.com/education** for full details			
CPU board	UP Mini 2	**25-0800**	**193.59**
Main board	UP Mini 2	**25-0803**	**19.12**
Platform calibrator	*	**25-0805**	**4.96**
Nozzle height detect	*	**25-0806**	**4.96**
Perf board	UP Plus 2	**25-0809**	**8.26**
Flex board	UP Plus 2	**25-0810**	**11.55**
Flex board	*	**25-0811**	**9.91**
Flex board	UP Mini 2	**25-0812**	**11.55**
Perf board	UP Mini 2	**25-0813**	**8.26**
Extruder heater	*	**25-0814**	**61.25**
Nozzle 0.2mm	*	**25-0823**	**11.23**
Nozzle 0.4mm	*	**25-0815**	**11.23**
Nozzle 0.6mm	*	**25-0824**	**11.23**
Power supply	UP Mini 2	**25-0816**	**31.53**
Extruder heater	*	**25-0817**	**61.24**
Extuder heater	UP Box	**25-0818**	**114.81**
HEPA filter	*	**25-0819**	**9.37**
Extruder assembly	*	**25-0820**	**126.79**
Perfboard	UP Box+	**25-0204**	**19.85**
Flex board	UP Box	**25-0821**	**23.44**
Extruder V1	UP Box+	**25-0822**	**133.85**

566550

High Quality Consumables

ABS and ABS+ 500g Spools

ABS requires a higher operating temperature than PLA but is better for interlocking parts where a little bit of flex is required. ABS+ is stronger and less prone to warping than standard ABS.

- Supplied in **packs of 2 spools**

Colour	Order code	1+
ABS Plus		
Black	25-0219	46.31
Red	25-0225	46.31
Yellow	25-0224	46.31
Green	25-0223	46.31
Blue	25-0222	46.31
White	25-0221	46.31

Colour	Order code	1+
ABS		
Black	25-0230	30.86
Red	25-0231	30.86
Yellow	25-0232	30.86
Green	25-0229	30.86
Blue	25-0228	30.86
White	25-0227	30.86

552829

PLA 500g Spools

Requires a lower operating temperature than ABS and is more forgiving so can be easier to print with.

- Supplied in **packs of 2 spools**

From as little as
£14.70
per spool

Type	Order code	1+
Hawaii blue	25-0226	37.47
Rio green	25-0217	37.47
Pompeii grey	25-0218	37.47

552832

DREMEL
BIG ON DETAIL

The Dremel 3D45 Digilab 3D printer provides the flexibility and reliability needed to meet the demands of higher education, Maker-spaces and industrial applications that benefit from advanced FDM (Fused Deposition Modelling) 3D printing.

Whether you are making prototypes for biomedical devices or simply producing works of art, the Dremel 3D45 quickly and accurately produces printed models in a safe, easy to use package.

The Dremel 3D45 printer has an improved extruder that minimises distractions and downtime. The extruder is designed to fit all Dremel filament materials without the need of changing any parts before operation.

Changing from one material type to another is simplified by the printer's integrated RFID recognition technology. It automatically adjusts the printer settings to suit the filament type being used and eliminates the need to re-slice files for each type of filament.

With the 3D45's integrated camera, users can monitor the progress of their printing project. For example, teachers can track the three-dimensional printing in real time with their students by accessing the camera's IP address. Using the WLAN function, users can also start their prints remotely.

3D45 DIGILAB 3D Printer

PLUS FREE 4 Reels of assorted colours PLA Filament

- Fully enclosed chamber for minimum noise
- HD camera for remote monitoring
- Easy filament set-up using RFID recognition
- Heated bed and cooling fan prevents warping
- Easy setup and print control via full-colour touch-screen
- Integrated filter systems for dust and fumes
- 50 micron build resolution
- Fast and accurate calibration with semi-automatic levelling
- Start printing via WiFi, Ethernet or using a file on a USB flash drive
- CE marked
- 1 year Dremel warranty
- Supplied complete with 500g reel of black ECO-ABS filament, 500g reel of black Nylon filament, 3x build tapes, power cable, USB flash drive, un-clogging tool, glue stick, removing tool and instruction manual
- PLUS FREE 4 Reels of assorted colours PLA Filament
- Dremel type 3D45 Digilab

Order code **25-0536**

£1385.99

1.75mm PLA Filament for 3D Printers - 0.75kg Reels

1.75mm diameter PLA 3D printer filament, in a range of colours, suitable for use with Dremel 3D printers. The filament spool contains an RFID tag which can be read by some Dremel 3D printers, allowing them to automatically adjust their settings to suit the filament loaded in the spool holder. The Dremel 3D printer melts and prints the PLA filament layer-by-layer, no thicker than a sheet of paper to provide a very smooth surface for your creation.

The PLA material is plant-based and recyclable, stiff but brittle, odourless, low-warp, eco-friendly and uses less energy to process. It is ideal for cosmetic prints, desk toys and low physical stress applications. PLA is ideal for beginners due its to ease of printing and minimal warp.

- Range of colours
- Filament diameter: 1.75mm
- Approximate filament length: 17.5m
- Supplied on **0.75kg reels** with RFID identification

Colour	Order code	1+
Black	**25-0540**	23.99
Blue	**25-0544**	23.99
Gold	**25-0548**	23.99
Green	**25-0538**	23.99
Orange	**25-0542**	23.99
Pink	**25-0546**	23.99
Purple	**25-0543**	23.99
Red	**25-0541**	23.99
Silver	**25-0547**	23.99
Translucent	**25-0553**	23.99
White	**25-0539**	23.99
Yellow	**25-0545**	23.99

570978

DREMEL
BIG ON DETAIL

3D40 Idea Builder, Build Tape BT40-02- pack of 2

Using build tape on the Dremel Idea Builder 3D40 printer securely fixes 3D printed objects to the build plate and supports optimal printing of 3D objects. It also makes removing 3D prints from the build plate easier.

The build tape lasts for up to 100 prints and applies easily to the build plate without the bumps or bubbles of adhesive tape. Prints come out better and the build plate is protected from print residue.

- For use with the Dremel 3D40 3D printer
- Ensures stable printing of the workpiece
- Easier removal of the finished print
- Helps to protect the build platform
- Supplied in a **pack of 2**

Type	Order code	1+
Build tape pack of 2	**25-0534**	16.53

563998



THE TOOL FOR THE DIGITAL CRAFTSMAN

MFS1V2 Desktop 3D Scanner

A 3D scanner is a machine that measures an object and creates a (nearly) exact replica as a 3D model. This 3D model is a computer file which can be 3D printed, modified in 3D modelling software, or used in a VR or AR presentation. 3D scanners are used in many professions and industries, including visual effects, engineering, dentistry, medicine, fashion design and more.

The Matter and Form 3D Scanner is both a measurement tool and a creation tool. Scan an object (found or made) to create an accurate 3D model, and then get creative. Re-purpose the 3D model, combine it with others, subtract from it or add to it - make it into something new and useful. The 3D scanning process is a hands-on, skills-building and incredibly engaging way to make meaningful, 3D printable objects.

The new V2 version desktop 3D digital scanner from Matter and Form is the perfect tool for the 3D scanning of objects and creation of 3D printable files.

Using an eye-safe laser scanner and the MFStudio with +Quickscan software you will be able to capture a digital replica of your object with up to 0.1mm accuracy. Suitable for anyone - from beginner to pro - and designed for many applications such as archiving, art, design, modelling, etc. Set up and scanning is quick and easy, with just 65 seconds required for a single scan, and the unit will produce 3D printable files that can be used with all 3rd party 3D printers and modelling programs to produce your amazing models.

The scanner has fully customisable controls and will manage your project workflow. Full documentation and live customer support is provided, so that peace of mind is guaranteed.

Included with the scanner is the MFStudio with +Quickscan software. MFStudio is a powerful scanning application with precise colour texturing and robust cleaning tools, and the +Quickscan add-on feature delivers immediately responsive scanning. Together, MFStudio and +Quickscan produce fast, precise results that allow you to quickly set up a scan and see the results in minutes.

Order code **25-0381**

£746.89

- **Scans as fast as 65 seconds per pass**
- **Capture scans up to 0.1mm accuracy**
- **Camera exposure previews**
- **Adaptive regular scanning**
- **Works on Mac OS 10.11+, Windows (64 bit) 7, 8.11, 10**
- **Works with nearly all video graphics cards**
- **Includes power adaptor, USB cable, calibration card, documentation, small plastic toy**

For technical specification visit www.rapidonline.com.

MAYKU

A Desktop Vacuum Former to Help You Bring Your Ideas to Life

The Mayku FormBox puts the power of making in your hands and can turn your classroom into a creative powerhouse, giving students a hands-on STEM learning experience. Powered by any vacuum cleaner, it works with a range of materials and helps you to bring your creative ideas to life.

Packing industrial strength into a small space, the desktop vacuum former is a powerful, portable learning tool. Create engagement in STEM curriculums and allow cost-effective exploration of product design, technology, manufacture and business concepts.!

HOW IT WORKS

Create: 3D print, sculpt or find your shape and place it on the FormBox bed.
Form: The FormBox forms a sheet of material around your shape creating a mould in seconds.
Multiply: Fill your mould with materials such as chocolate, soaps, resin, plaster or even concrete.
Result: Take it out and bring your first collection of products to life.

- 200 x 200mm bed size
- 160°C to 340°C heater range
- Compatible with PETg, HIPS, ABS, polystyrene, polycarbonate, polyethylene and acrylic PMMA from 0.25 to 1.5mm thickness
- Desktop machine 466 x 274 x 315mm
- Universal adaptor to fit almost any vacuum cleaner
- Automatically switches the vacuum on when required
- UK mains cable

Mayku FormBox

£473.50

Order code 70-0021

Mayku Cast

Transparent and food-safe 0.5mm sheets for making reusable moulds. The slight flex and non-stick surface that the sheet provides ensures that your templates and casts can be removed with ease.
Fully recyclable and partly made from recycled plastic waste.

- Sheet size 230 x 230mm
- Transparent PETg
- Food-safe
- Supplied in a **pack of 30**

£30.85
Order code 70-0028

Mayku Form

A 0.5mm versatile, easy-to-use white HIPS sheet. Great for product packaging, prototyping and enhancing decorative craft projects.
Fully recyclable and partly made from recycled plastic waste.

- Sheet size 230 x 230mm
- White HIPS
- Supplied in a **pack of 30**

£30.85
Order code 70-0029

3D Printers

FLASHFORGE 3D PRINTER

Adventurer 3 Desktop Minimalist 3D Printer

The **Flashforge Adventurer 3** is a 3d printer that is compact enough to fit on your desktop, is simple to use, and has a feature set and performance that make this printer a versatile addition to a classroom, workshop, home, etc.

The printer is ready-to-use and the non-levelling design avoids imprecise printing from improper levelling operation. The complete nozzle unit can be swapped-out in seconds thanks to the new hot swappable design, including an inbuilt heating cartridge and thermistor. The nozzle is surrounded by a plastic shell to protect your hands, and can be replaced faster than any other printer.

- Simplified, portable and compact design
- Fully upgraded patented extruder assembly
- Removable and flexible heated print bed
- Auto filament feeding with enclosed built-in cartridge
- Removable and flexible heated print bed
- 3D Print remotely from the cloud
- Built-in 2 million pixel WiFi HD camera for remote monitoring
- 45dB Ultra quiet operation
- Flexible build plate allows easy removal of printed objects
- A heated bed that happily goes up to 100°C
- Full colour touch screen
- Includes one spool of filament

Technical specification:

Print	
No. of extruders	1
Extruder diameter	0.4mm
Extruder set temperature max.	240°C
Build volume	150 x 150 x 150mm
Print speed	10 to 100mm/s
Platform set temperature max.	100°C
Device	
Printer volume	388 x 340 x 405mm
Spool	52mm
Display	2.8in Touch screen
Input voltage	100 to 240V AC
Power	150W
Net weight	9kg
Communication	
Data transmission	Wi-Fi, Ethernet, FlashCloud, PolarCloud, USB stick
Software	Flashprint
Input	3MF, STL, OBJ, FPP, BMP, PNG, JPG, JPEG
Output	GX/G Files

Type	Order code	1+
Adventurer 3	**25-0142**	339.95

583011

Technical specifications

Technical specifications for all of these products can be found at

www.rapidonline.com

ADVENTURER 4

FLASHFORGE 3D PRINTER

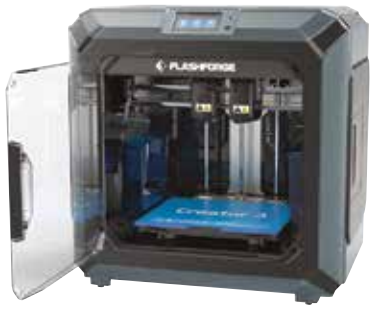
- Leveling-free platform
- Detachable Nozzle Resistant To 265 Centigrade
- Remove Models Quickly
- Multi-device Operation Management
- Various Filaments Supported
- HEPA 13 filter

ONLY
£733.99
ORDER CODE
25-0147

Ultimaker

COMING SOON!

FLASHFORGE 3D PRINTER



Creator 3 Independent Dual Extruder 3D Printer

The Flashforge Creator 3 is a powerful, industrial-grade 3D printer that features dual independent extruders that give larger build size, higher speeds, and support for water-soluble filaments.

The Creator3 has independent dual extruder system with mirror, duplicate, soluble support, and multi-material modes, making it the best-in-class choice for small production with quality and precision, to speed up the time to market and cut manufacturing costs.

- Dual 300°C 0.4mm independent extruders
- Carbon fibre parts
- Intelligent levelling
- A wide range of materials
- Massive build volume
- Flexible heatable platform
- Four built-in ventilating fans
- 3D Printed farm can be set up to create small production facility

Technical specification:

Print	
Technology	Fused Filament Fabrication (FFF)
No. of extruders	2x Independent nozzles
Extruder diameter	0.4mm
Extruder set temp max.	300°C
Print volume	300 x 250 x 250mm
Filament diameter	1.75mm
Layer resolution	0.05 to 0.4mm
XYZ Resolution	Z axis 0.0025mm; XY axis 0.011mm
Print speed	10 to 200mm/s
Platform set temp max.	120°C
Build plate levelling	Auto XYZ calibration, levelling with sensor
Supported filaments	PVA + PLA, HIPS + ABS, wood, PC, PA, PETG
Device	
Input voltage	100 to 240V AC
Power	500W
Dimensions	627 x 485 x 615mm
Net weight	45kg
Ambient temperature	+15°C to +30°C
Communication	
Connectivity	USB stick, Wi-Fi, Ethernet, FlashCloud, PolarCloud
Software	Flashprint
Input formats	STL, OBJ, X3D, 3MF, BMP, GIF, JPG, PNG
Output formats	GX/G Files
System	Windows, MacOS, and Linux

Type	Order code	1+
Creator 3	**25-0146**	1838.50

583015

FLASHFORGE 3D PRINTER

Creater Pro 2 Independent Dual Extruder 3D Printer

The Flashforge Creator Pro 2 is an advanced 3d printer that is reliable, easy-to-use and features an independent dual extruder system.

The dual extruders give you the ability to print wither two independent models, duplicates or mirrored copies of the same design, increasing productivity and maximising flexibility and capability. A 3.5in touchscreen makes operation simple and intuitive. The closed machine design ensures the printed results, especially for ABS printing.

- 3.5in Touchscreen interface
- Metal framework
- Supports multiple materials
- Anti-scrape design
- Nozzle calibration
- Flexible platform makes removing models easier

Technical specification:

Print	
No. of extruders	2
Extruder diameter	0.4mm
Extruder set temp max.	240°C
Build volume	200 x 148 x 150mm
Mirror mode	80 x 148 x 150mm
Duplicate mode	95 x 148 x 150mm
Print speed	10 to 100mm/s
Platform set temp max.	120°C
Supported filaments	PLA, Pearl PLA, PVA, ABS, ABS Pro, HIPS
Device	
Net weight	15kg
Gross weight	21kg
Input voltage	100 to 240V AC
Power	320W
Dimensions	526 x 360 x 403mm
Communication	
Connectivity	USB cable, SD card
Software	Flashprint
Input formats	3MF, STL, OBJ, FPP, BMP, PNG, JPG, JPEG
Output formats	GX/G Files

Type	Order code	1+
Creator Pro 2	**25-0144**	683.90

583013

CREALITY

Free Delivery*

on all orders over £30 (excl. VAT)
(UK mainland only)

* See Terms & Conditions for full details - **www.rapidonline.com/terms**

FLASHFORGE 3D PRINTER

Guider IIs 3D Printer Large Volume High Temperature Extruder

The Flashforge Guider IIs is a 3D printer that is designed to producelarge volume models in small production facilities.

The massive build volume of 280 x 250 x 300mm means you can print large models or multiple parts on one platform, in one print run. The printer supports a large number of filaments, increasing versatility of use, and with the upgraded high temperature extruder, the printer is ideal for use in education, small businesses and industry.

- Hardened feeding gear for printing carbon filled filament
- Custom machined teeth on the hobbed gearing for serious grip on filament
- Hardened, high-temperature 0.4mm extruder can reach to 300°
- HEPA Air filtration system is safer and more environmental-friendly
- 5in Touch screen
- Filament-detection
- Heatable platform
- Printed models are easy to remove
- Resume printing after power is off
- Built in-camera for remote monitoring
- Auxiliary levelling
- Fully-enclosed body
- Cloud, Wifi, Ethernet or USB connectivity

Technical specification:

Print	
No. of extruders	1
Extruder diameter	0.4mm
Extruder set temp max.	300°C
Print volume	280 x 250 x 300mm
Print speed	10 to 150mm/s
Platform set temp max.	120°C
Supported filaments	ASA/PETG/PC/PA/ABS/PA-CF/PA-GF/ PLA/PLA Change Color/PLA METAL/
Device	
Input voltage	100 to 240V AC
Power	500W
Dimensions	490 x 550 x 560mm
Net weight	30kg
Communication	
Connectivity	USB Cable, USB stick, Wi-Fi, Ethernet, FlashCloud, PolarCloud
Software	Flashprint
Input formats	3MF, STL, OBJ, FPP, BMP, PNG, JPG, JPEG
Output formats	GX/G Files

Type	Order code	1+
Guilder IIs	**25-0145**	1466.64

583014

Tiertime

UP 300 3D Printer

The Tiertime UP300 3D printer has been designed for users demanding a large build volume and consistent performance across different materials. It combines new innovations and improved, popular UP features with Tiertime's renowned reliability.

- **Features:**
- Material-specific print heads - optimised temperature, etc., for different materials
- Double-sided interchangeable build plates - the glass surface provides a consistent, flat base, ensuring a smooth model underside, desirable for printing without a raft
- Dual air filtration - version 2 - for healthier 3D printing using HEPA and activated carbon with higher airflow capacity
- Control and monitor print jobs with a 110mm (4.3in.) full colour LCD touchscreen - Tiertime print queue, print job settings and print job status are right at your fingertips
- Waste collection tray - a removable tray positioned below the build platform makes cleaning the bottom of the enclosure a breeze
- Tiertime Print Queue can control and re-order the print queue over the network
- Print directly from USB stick - includes a spare USB port for loading print tasks (a sliced 3D model file with print settings embedded) from a USB memory stick
- Ethernet connection - in addition to Wi-Fi, the UP300 includes a LAN Port for those preferring to work in a more secure, hard-wired network environment

The Tiertime UP 300 3D printer is supplied complete with:
1x ABS extruder (installed in printer)
1x TPU extruder
1xPLA extruder
1x flex glass board
1x perf glass board
1x power adaptor
1x power cord
1x 500g roll of ABS filament

Accessory box containing:
1x USB cable
1x pliers
1x scraper
1x 8mm nozzle wrench
1x pair of gloves
1x SD card reader
1x SD card
1x calibration card
2x PTFE tubes for extruders
3x Allen keys
3x nozzles

Technical Specification:

Display	110mm (4.3in.) full colour LCD touchscreen
Build volume / size	205 x 255 x 225mm (W x D x H)
Layer thickness	0.05/0.1/0.15/0.2/0.25/0.3/ 0.35/0.4mm
Filament material	ABS, ABS+, PLA , TPU and more
Filament diamter	1.75mm
Compatible with 3rd party materials	Yes
Print head	Single, exchangeable
Machine dimensions	500 x 523 x 460mm (W x D x H)
Machine weight	30kg net
Power	100 to 240V, 50 to 60Hz, 220W
Connectivity	USB cable, Wi-Fi, LAN and USB Stick
Workstation compatibility	Windows 7 SP1 or later, Mac OS X, iOS 8.x/9.x
Tiertime print queue	Yes
Filtration system	HEPA and activated carbon filters V2

Type	Order code	1+
UP 300 3D printer	**25-0233**	1884.07

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Tiertime

UP BOX Compact 3D Desktop Printer

The UP BOX is the third ground breaking model in the award winning UP series of desktop 3D printers. Incorporating all of the proven features of the UP Mini and UP Plus 2, the UP BOX is easy to set up, use and boasts an impressive build size of 255 x 205 x 205mm and 0.1mm layer thickness.

Fully automatic platform calibration

Automatic platform levelling and nozzle height detection with integrated probe provides a seamless 3D printing experience

Large build volume
Impressive build volume of 255 x 205 x 205mm (W x D x H) for extra large print jobs

Faster printing with higher precision

Set to the same print quality, the UP BOX prints 30% faster than the UP Plus 2 with a resolution of up to 0.1mm layer thickness

Enclosed print bed with new ABS print surface

The enclosed build chamber maximises temperature stability, and this combined with an ABS print surface to improve adhesion and eliminate warping on large prints

Smart Support Technology
The UP BOX automatically produces easily removable support structures and allows difficult and complex designs to be printed with ease

Powerful but easy to use software
The UP software is simple to use and feature rich – easy enough for first time users and versatile enough for experts

Quiet operation and air filtration
The UP BOX produces very little noise and has a built-in air filter to absorb fumes and minimize odour

- [GroupBulletPoints01]

Older style 700g filament spools are not compatible with the UP BOX but remain compatible with the Plus 2 and Mini.

Technical Specification:

Build volume	255 x 205 x 205mm (W x D x H)
Print material	ABS / PLA
Print head	Single
Layer thickness	0.10 / 0.15 / 0.20 / 0.25 / 0.30 / 0.35 / 0.40mm
Power	110 to 240V AC, 50/60Hz
Connectivity	USB
Workstation operating systems	Windows XP, Vista, 7 & 8, MAC
Dimensions	485 x 495 x 520mm (W x D x H)
Machine weight	20kg

Type	Order code	1+
Up box	**25-0202**	1039.50

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Help

Visit our online help centre

www.rapidonline.com/help

DREMEL

Dremel 3D45 DIGILAB 3D Printer + FREE Red, White, Blue & Green PLA Filament

The Dremel 3D45 Digilab 3D printer provides the flexibility and reliability needed to meet the demands of higher education, Maker-spaces and industrial applications that benefit from advanced FDM (Fused Deposition Modelling) 3D printing.

Whether you are making prototypes for biomedical devices or simply producing works of art, the Dremel 3D45 quickly and accurately produces printed models in a safe, easy to use package.

The Dremel 3D45 printer has an improved extruder that minimises distractions and downtime. The extruder is designed to fit all Dremel filament materials without the need of changing any parts before operation.

Changing from one material type to another is simplified by the printer's integrated RFID recognition technology. It automatically adjusts the printer settings to suit the filament type being used and eliminates the need to re-slice files for each type of filament.

With the 3D45's integrated camera, users can monitor the progress of their printing project. For example, teachers can track the three-dimensional printing in real time with their students by accessing the camera's IP address. Using the WLAN function, users can also start their prints remotely.

- Fully enclosed chamber for minimum noise
- HD camera for remote monitoring
- Easy filament set-up using RFID recognition
- Heated bed and cooling fan prevents warping
- Easy setup and print control via full-colour touch-screen
- Integrated filter systems for dust and fumes
- 50 micron build resolution
- Fast and accurate calibration with semi-automatic levelling
- Start printing via WiFi, Ethernet or USB flash drive
- CE marked
- 1 year Dremel warranty
- Supplied complete with a 500g reel of black ECO-ABS filament, a 500g reel of black Nylon filament, 3x build tapes, power cable, USB flash drive, un-clogging tool, glue stick, removing tool and instruction manual
- **PLUS FREE Red, Blue, White & Green PLA Filament**
- **Dremel type 3D45 Digilab**

Technical Specification:

BUILDING	
Printing technology	FDM - Fused Deposition Modeling
Extruder	Single
Maximum build volume	255 x 155 x 170mm
Z-layer resolution	50 to 100 microns
Material	PLA, Nylon, Eco-ABS
Filament diameter	1.75mm
Nozzle diameter	0.4mm
Internal storage	8GB
Operating interface	4.5in. full colour IPS touch screen
Build platform leveling	Semi-automated
TEMPERATURE	
Extruder	Max. 280°C
Build platform	Max. 100°C
Operating	16 to 29°C
SOFTWARE	
Compatibility	Dremel DigiLab 3D Slicer, 3D
Printer OS, Simplify3D	
File types	STL, OBJ
Operating systems	Mac OSX (v10.9+), Windows (7,8,8.1,10)
ELECTRICAL	
Input rating	100 to 240V, 50 / 60Hz, 0.85 to 2.3A
Connectivity	USB, Ethernet, Wifi
PHYSICAL	
Weight	19.4kg
Dimensions	515 x 406 x 394mm

Type	Order code	1+
3D printer + filament	**25-0536**	1385.99

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Technical specifications

Technical specifications for all of these products can be found at

www.rapidonline.com

Filament

Tiertime

3D Printer ABS Filament 1.75mm Diameter - 500g Spools

This filament has been specifically approved by the manufacturers of the UP range of **3D printers** for the best print quality and consistency.

The filament is available in durable ABS or in ABS Plus, which is stronger than the standard ABS and is ideal for use with larger models as it is less inclined to warp.

- 1.75mm diameter
- Available in black, red, yellow, green, blue and white
- Supplied on **500g spools**

Please note: *ABS Plus filament can only be used with version 2.18 or higher. These 500g filament reels are compatible with the UP BOX, UP Plus 2 and UP Mini. Old style 700g spools are not compatible with the UP BOX but remain compatible with the UP Plus 2 and Up Mini.*

Technical Specification:

Order code	Mftrs Part No.	Colour
25-0219	UPKABS/2	Black
25-0225	UPRABS/2	Red
25-0224	UPYABS/2	Yellow
25-0223	UPGABS/2	Green
25-0222	UPBABS/2	Blue
25-0221	UPWABS/2	White
25-0230	UPKBBS/2	Black
25-0231	UPRBBS/2	Red
25-0232	UPYBBS/2	Yellow
25-0229	UPGBBS/2	Green
25-0228	UPBBBS/2	Blue
25-0227	UPWBBS/2	White

Price per pack of 2 reels

Colour	Order code	1+
ABS Plus		
Black	**25-0219**	46.31
Red	**25-0225**	46.31
Yellow	**25-0224**	46.31
Green	**25-0223**	46.31
Blue	**25-0222**	46.31
White	**25-0221**	46.31
ABS		
Black	**25-0230**	30.86
Red	**25-0231**	30.86
Yellow	**25-0232**	30.86
Green	**25-0229**	30.86
Blue	**25-0228**	30.86
White	**25-0227**	30.86

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Tiertime

3D Printer PLA Filament 1.75mm Diameter - 500g Spools

This PLA filament has been specifically approved by the manufacturers of the UP range of 3D printers for the best print quality and consistency.

PLA filament requires lower operating temperatures than ABS filaments. To use it with your UP 3D printer, check that you have the latest version of the UP software. PLA support was added in version 2.11 so check that you have this version or higher. The latest version of the software can be downloaded from **http://www.pp3dp.com/**. Click on the 3D Print menu and go to maintenance, then click New Spool and from the drop down menu, select PLA rather than ABS.

Why use PLA? There are pros and cons to using both ABS and PLA and which one you choose will depend largely on the model you are making, it's application and the finish you are looking for. PLA can be melted at lower temperatures and the odour when printing is slightly more pleasant than ABS. However, because PLA melts at lower temperatures, it can be prone to drooping if left in a really warm place for extended periods, especially if the model has thin, unsupported parts.

- Less prone to warping or curling than ABS
- Often has a gloss finish compared to ABS
- Considered more eco-friendly than ABS
- Can sometimes produce 'sharper' points and corners than ABS
- 1.75mm diameter
- Available in green, blue and grey
- Supplied on **500g spools**

These 500g filament reels are compatible with the UP BOX, UP Plus 2 and UP Mini. Old style 700g spools are not compatible with the UP BOX but remain compatible with the UP Plus 2 and Up Mini.

Technical Specification:

Order code	Mftrs Part No.	
25-0226	UPHBPLA/2	Hawaii blue
25-0217	UPRGPLA/2	Rio green
25-0218	UPPGPLA/2	Pompeii grey

Price per pack of 2 reels

Type	Order code	1+
Hawaii blue	**25-0226**	37.47
Rio green	**25-0217**	37.47
Pompeii grey	**25-0218**	37.47

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Rapid education — We bring STEAM to life

DREMEL

Dremel 1.75mm PLA Filament for 3D Printers - 0.75kg Reels

1.75mm diameter PLA 3D printer filament, in a range of colours, suitable for use with Dremel 3D printers.

The filament spool contains an RFID tag which can be read by some Dremel 3D printers, allowing them to automatically adjust their settings to suit the filament loaded in the spool holder. The Dremel 3D printer melts and prints the PLA filament layer-by-layer, no thicker than a sheet of paper to provide a very smooth surface for your creation.

The PLA material is plant-based and recyclable, stiff but brittle, odourless, low-warp, eco-friendly and uses less energy to process. It is ideal for cosmetic prints, desk toys and low physical stress applications. PLA is ideal for beginners due its to ease of printing and minimal warp.

- Range of colours
- Filament diameter: 1.75mm
- Approximate filament length: 17.5m
- Supplied on **0.75kg reels** with RFID identification

Colour	Order code	1+
Black	**25-0540**	23.99
Blue	**25-0544**	23.99
Gold	**25-0548**	23.99
Green	**25-0538**	23.99
Orange	**25-0542**	23.99
Pink	**25-0546**	23.99
Purple	**25-0543**	23.99
Red	**25-0541**	23.99
Silver	**25-0547**	23.99
Translucent	**25-0553**	23.99
White	**25-0539**	23.99
Yellow	**25-0545**	23.99

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3D Scanner

matter and form

MFS1V2 Desktop 3D Scanner

A 3D scanner is a machine that measures an object and creates a (nearly) exact replica as a 3D model. This 3D model is a computer file which can be 3D printed, modified in 3D modelling software, or used in a VR or AR presentation. 3D scanners are used in many professions and industries, including visual effects, engineering, dentistry, medicine, fashion design and more.

The Matter and Form 3D Scanner is both a measurement tool and a creation tool. Scan an object (found or made) to create an accurate 3D model, and then get creative. Re-purpose the 3D model, combine it with others, subtract from it or add to it - make it into something new and useful. The 3D scanning process is a hands-on, skills-building and incredibly engaging way to make meaningful, 3D printable objects.

The new V2 version desktop **3D digital scanner from Matter and Form** is the perfect tool for the 3D scanning of objects and creation of 3D printable files.

Using an eye-safe laser scanner and the MFStudio with +Quickscan software you will be able to capture a digital replica of your object with up to 0.1mm accuracy. Suitable for anyone - from beginner to pro - and designed for many applications such as archiving, art, design, modelling, etc. Set up and scanning is quick and easy, with just 65 seconds required for a single scan, and the unit will produce 3D printable files that can be used with all 3rd party 3D printers and modelling programs to produce your amazing models.

The scanner has fully customisable controls and will manage your project workflow. Full documentation and live customer support is provided, so that peace of mind is guaranteed.

Included with the scanner is the MFStudio with +Quickscan software. MFStudio is a powerful scanning application with precise colour texturing and robust cleaning tools, and the +Quickscan add-on feature delivers immediately responsive scanning. Together, MFStudio and +Quickscan produce fast, precise results that allow you to quickly set up a scan and see the results in minutes.

- **Scans as fast as 65 seconds per pass**
- Capture scans up to 0.1mm accuracy
- Camera exposure previews
- Adaptive regular scanning
- **Works on Mac OS 10.11+, Windows (64 bit) 7, 8.11, 10**
- **Works with nearly all video graphics cards**
- Includes power adaptor, USB cable, calibration card, documentation, small plastic toy

Technical Specification:

Object size and weight	
Height	250mm
Diameter	180mm
Weight	3kg
Scan accuracy	
Size accuracy	Within ± 0.1mm
Scan speed	
Per pass	65 seconds
Optics	
Sensor	HD CMOS
Scan optic	2x Eye-safe lasers
File export support	
File types	STL, OBJ, PLY, XYZ
Connectivity	
Interface	High speed USB 2.0
Scanner dimensions	
Height	345mm
Width	210mm
Open length	345mm
Closed length	85mm
Weight	1.71kg
Power	
Input	110 to 240V 2A 50-60Hz
Power	
Requirements	12V DC @ 2A
Operating temperature	
Temperature range	+15°C to +32°C

Type	Order code	1+
3D Scanner	**25-0381**	746.89

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