MITS ELECTRONICS

3D Printer

Stereolithographic (SLA) 3D Printer

Made in Japan

Seeking truly valuable stereolithographic 3D printers

FLASH 75

M3DS-300

3D printer lineup

FLASH 75 Desktop printer ! Entry level 3D printer for education

NEW

- Available resin
  Acrylic / Rubber like
- Maximum printing size
  100 x 75 x 150mm
- Machine dimension
  800 x 500 x 660mm

Newly introduced tray system
made maintenance even simpler.

FLASH75 Storage box
(optional)
This storage box can be attached on main body of FLASH75, and is convenient to store resin bottles and tray.

- Dimension
  230 x 460 x 435 mm
- Weight
  10 kg

M3DS Series For Professionals of research and product development

Standard Type

M3DS-100

- Available resin
  Acrylic / Rubber like /
  Highly stretchable rubber like
- Maximum printing size
  100 x 75 x 150mm
- Machine dimension
  620 x 500 x 1140mm

High Precision Type

M3DS-200

- Available resin
  Acrylic / Rubber like /
  Highly stretchable rubber like /
  Lost form / Conductive
- Maximum printing size
  95 x 54 x 150mm
- Machine dimension
  620 x 500 x 1140mm

Large Size Type

M3DS-300

- Available resin
  Acrylic / Rubber like /
  Highly stretchable rubber like /
  Lost form / Conductive
- Maximum printing size
  298 x 180 x 250mm
- Machine dimension
  860 x 620 x 1670mm

Specifications

	FLASH 75	M3DS-100 Standard	M3DS-100 Wide	M3DS-200
Features	Desktop, Tray system	Floor model, Coater System		Floor model, Coater System
Maximum printing size (X Y Z mm)	100 x 75 x 150	100 x 75 x 150	150 x 100 x 170	96 x 54 x 150
Layer thickness (mm)	0.05 (variable by software)	0.05		0.025, 0.05 (Switching by software)
X Y resolution (mm)	0.1	0.1	0.15	0.05
Maximum printing speed (with layer thickness of 0.05mm) (mm/h)	6	20		20
Printing direction	Vertical lifting	Vertical lifting		Vertical lifting
Available Materials	Acrylic resin, Rubber like resin	Acrylic resin, Rubber like resin, Highly stretchable rubber like resin		Acrylic resin, Rubber like resin, Highly stretchable rubber like resin, Lost form resin, Conductive resin
Light source	LED & laser hybrid over 8mW/㎠ 3000 lumen	LED & laser hybrid over 8mW/㎠ 3000 lumen		LED & laser hybrid over 8mW/㎠ 3500 lumen
Machine dimensions (W x D x H mm)	800 x 500 x 660	620 x 500 x 1140 (including caster)		620 x 500 x 1140 (including caster)
Machine weight (kg)	70	52		64
Power supply / Power consumption	AC100~240V 50/60 Hz 400W	AC100V 50/60 Nz 500W		AC100V 50/60 Nz 650W
Note	Optional strorage box			Variable printing size option (75%~150%)

How to read the specification

XY resolution and printing size

XY resolution is a size of 1 pixel for the projector. In general, if this value is smaller, smaller feature can be printed more precisely. However, printing size in XY dimensions gets smaller.

Layer thickness and printing speed

Layer thickness is basically fineness of Z direction (height direction), and in general, smaller this value is, surface of the printed object gets finer and smooth. However, overall printing time gets longer

Tray system and coater system

- **Tray system**
  Put resin into tray in about 5mm depth.
  Put platform into resin to cure.Then lift it.
  This sequence is repeated until print is over.
  When printing soft objects, during lifting and putting into tray, objects shakes a little bit.
  Coater system improved this disadvantage.
- **Coater system**
  In this process, thin layer of resin is coated on a sheet and cured.
  Then cured layer is peeled from the sheet, and this process is repeated until printing is over.

Vertical lifting and platform submerging

- **Vertical lifting**
  FLASH 75 and M3DS adopt vertical lifting system.
  Light is projected through resin tray (FLASH 75) or light is projected through printing sheet (M3DS). The UV light cures 1 layer of resin, and platform is lifted through the process.
  Printed objects are hung upside-down from platform.
- **Platform submerging** (No MITS 3D printers adopt this type)
  Many stereolithographic 3D printers need deep resin pool as deep as the height of object to be printed.
  Platform will be submerged into the resin pool.
  UV light is radiated on the surface of the resin to cure.
  Once the layer is cured, platform sinks down by one layer to form another layer on top of the layer just cured.

Specifications

M3DS-300

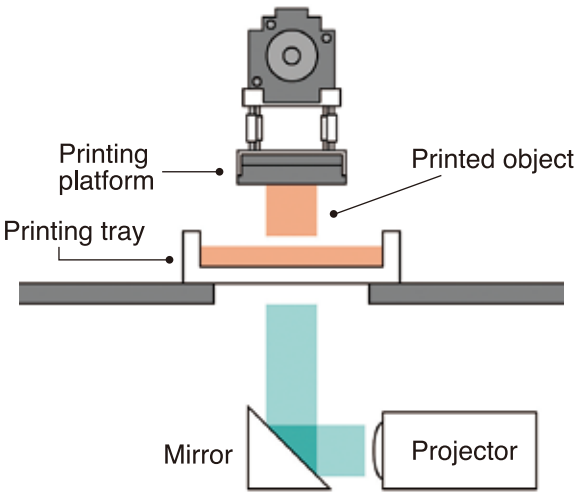
Floor model, Coater System
298 x 180 x 250
0.05, 0.1 (Switching by software)
0.15
15
Vertical lifting
Acrylic resin, Rubber like resin, Highly stretchable rubber like resin, Lost form resin, Conductive resin
Laser diode over 8mW/㎠ 7000 lumen
860 x 620 x 1670 (including caster)
144
AC100V 50/60 Nz 650W

Advantage of FLASH 75 • M3DS

- **High definition printing**
  With fine layer thickness, inclined surface or curved surface can be printed very smoothly.
  Objects with stick out feature also can be printed.
- **High speed printing**
  As MITS 3D printer adopted surface exposure using projector.
  Unlike laser scanning or FDM, one layer is printed as one face at a time.
  Therefore, no matter what the size of the objects, or number of objects to be created, printing speed is faster, and time to complete is easily calculated.
- **Small amount of resin required**
  While most stereolithographic type of 3D printers requires large amount of resin to be put into resin pool, FLASH75 and M3DS requires small amount of resin to be put into resin pool.
  (FLASH 75: 200cc / M3DS-100, 200: 350cc / M3DS-300: 800cc)
- **Long lifetime light source with less deterioration of brightness**
  MITS 3D printer is environment friendly and does not use light source with mercury. Light source lifetime is about 20,000 hours (10 times more than mercury lamp). So you can save time and cost for changing lamp.
- **Possible to mix resins**
  Resin can be colored by mixing dye or pigment.
  Different resins can be mixed each other. As Acrylic resin and rubber like resin can be mixed together, objects with high ductility can be printed. By changing the mixture ratio, you can have ductility of your choice.
- **Easy Maintenance**
  Structure of machine is simple. So users can maintain by themselves.
  We also provide optional maintenance services for a fee.

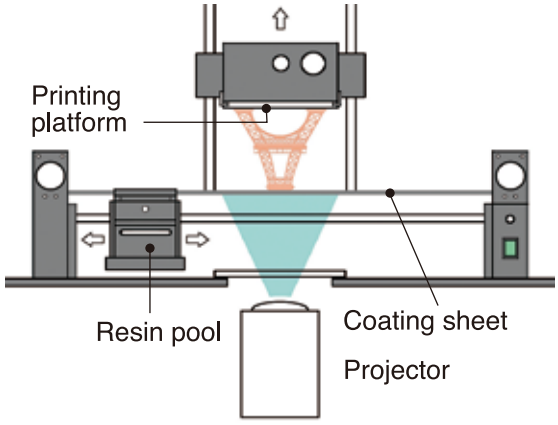
FLASH 75 printing mechanism / Tray system

Resin is put into a printing tray, then light is projected through the tray for cure one layer. Then platform is lifted by one layer for cure another layer, and repeat this process.



M3DS printing mechanism / Coater system

Before curing, resin for one layer is coated on the coating sheet. The projector radiates image for the layer and the layer is cured. The next step is peeling which the cured resin is peeled off the sheet. Lifting platform, coating resin, curing and peeling.
These process is repeated until print is finished. Resin pool is moving left and right during print in order to coat resin and peel off the object.



Materials and Applications

When selecting 3D printers, “making full use of materials” is the key. MITS 3D printer comes with support services based on our broad experiences.

For MITS 3D printer, two types of resins are available.
Acrylic resin is good for mockup or functional prototyping for Mechanical parts.
Rubber like resin has flexibility and stretching properties.
Other than those two materials, conductive resin and lost form resin are available.

Acrylic resin for Flash 75

With resins for MITS 3D printers, even first time users can print objects with less failure.
Also MITS 3D printer resins are improved so that printed objects are less breakable.
MITS 3D printers are environment friendly as resin is low viscosity and that can reduce the use of alcohol for cleaning object.

Color: orange

Acrylic resin and Rubber like resin

Acrylic resin and Rubber like resin can be used individually or mixing two together with the ratio of your choice.

So you can obtain own material with softness of your choice.
There are two types of rubber like resins, standard and Highly stretchable that stretches twice as normal rubber like resin.

Color: clear (coloring can be done by user)

Other (M3DS-200, M3DS-300 only)

Conductive resin

This material can be used for research for sensing devices that require conductivity.
Conductive acrylic resin and conductive rubber like resin are available.

volume resistivity : 1.64 x 10 Ωcm ~
color: black

Lost form resin

This is used for master model for lost form.

Color: red

	Resin	Acrylic resin for Flash 75	Acrylic resin	Rubber like resin Highly stretchable rubber like resin	Conductive Acrylic resin Conductive Rubber like resin	Lost form resin
	Application	Prototyping for mechanical parts		Prototyping for elastic parts or product	Parts require conductivity	Prototyping for lost form master
	Color	Orange	Clear	Clear	Black	Red
Applicable 3D printers	FLASH 75	◎	○	○	×	×
	M3DS 100	×	◎	◎	×	×
	M3DS 200	×	◎	◎	◎	◎
	M3DS 300	×	◎	◎	◎	◎

Software

Slicer software included

This software generates horizontal slices that is required for 3D printing, by cutting 3D model that is created by 3D CAD software.

Major Functionalities

1.Importing STL data
2.Creating support structure: Support structures are created based on the locations specified by a mouse.
3.Produce slice data

- **Slicer software for FLASH 75: Creation W3D**
  Intuitive and easy to use software
- **Slicer software for M3DS: NF Design CS**
  Other major functionalities described above, this software includes simple STL editing functionalities.

  * Optional software is available for processing point crowd and generating and editing STL data.

NF Design CS (For M3DS)

Creation W3D (For FLASH75)

Printing software included

3D printing software with easy settings for parameter for exposure.Exposure time varies depending on types of resin as well as colors.
With this software, you can set suitable exposure time for the material to be used.
Based on our experience and results, we have prepared most suitable exposure parameters for each materials and colors.

Creation W3D (For FLASH75)

Optional Products

Ultra-sonic cutter
For cutting and separate support structure.

LED Handy Lamp
Used to accelerate cure process

Ultra-sonic washing machine
Washing printed objects

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