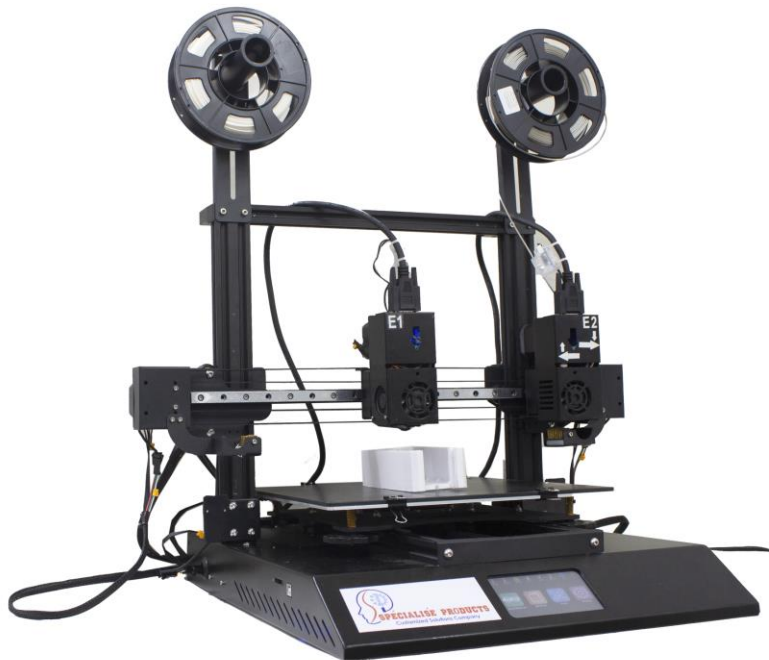


USER MANUAL

Dual Extruder 3D Printer With FFF Technology



MANUFACTURED AND SUPPLIED BY

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Specialise Products Private Limited is an Indian Original Design Manufacturer (ODM), who Conceptualise, Design and Manufacture customized machines as per customer's requirement.

We already Conceptualised, Designed and Manufactured Laser Surface Texturing Machine, Laser Assisted 3D Bio Printer (Patent Applied), 3D Direct printer (no need for Filament, directly input your materials in Powder/Granules OR Semisolid form), Liquid (Drop on Demand) 3D Printer, Automatic Laser Exposure and Scanning System (ALES) to name a few. We are always eager to understand customer's pain points and provide customise solutions which are not available in the market.

We thank you for purchasing the 3D FFF Printer machine from our Company.

We request you to please go through this manual and familiarise yourself with the safety aspects, and operation of the machine.

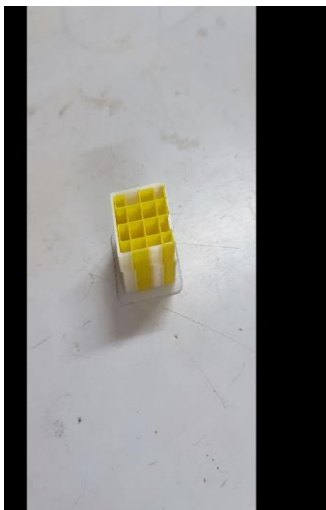
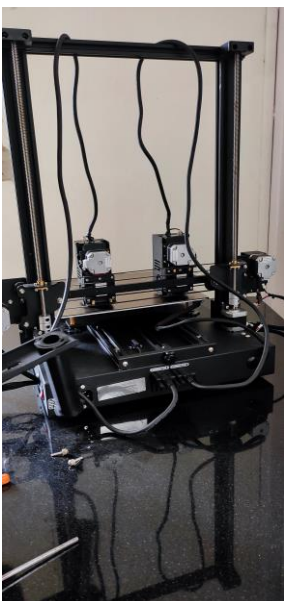
Customer service and satisfaction is our priority. You can contact us for any support.

For Specialise Products Pvt Ltd.

Mridul Verma
Managing Director

Introduction

The FFF 3D Printer by Specialise Products Pvt. Ltd is a user-friendly 3D printer with easy installation and user interface. Fused deposition modeling (FDM) 3D printing, also known as fused filament fabrication (FFF), is an additive manufacturing (AM) process where parts are built layer by layer by selectively depositing melted material in a predetermined path. It uses thermoplastic polymers that come in filaments to form the final physical objects.



Technical Specifications:

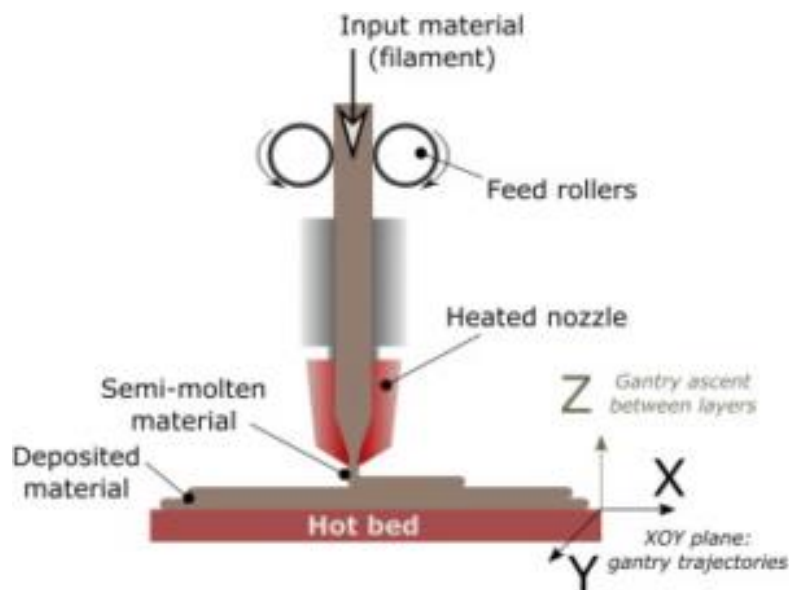
Parameter	Technical Specification
Printer Description	Bowden + Direct Drive Equipped Dual Extruder 3D Printer should be robust, rigid, flexibility of using third party open source material as well as advance grade OEM certified material
Printing Technology	Fused Filament Fabrication and should be capable of Cartesian type 3D printer ensuring utilization of full build volume and ease of maintenance.
Extrusion Technology	Fused Filament Fabrication and should be capable of Cartesian type 3D printer ensuring utilization of full build volume and ease of maintenance along with independent Bowden + Direct Drive feeding system which is used for rapid and flexible material of 3D printing with mirror mode and Duplication mode of 3D Printing
Build Volume	Build Volume: 365 x 300 x 200 mm Mirror mode and duplication mode: 365 x 300 x 200 mm
Interchangeable Nozzle	0.2, 0.4,0.6,0.8 mm
Nozzle replacement	Nozzle should be easily replaceable with the help of Dart plus head tool
Dual Color Printing	The printer should be capable of printing in dual color filament in a single build
Bed Leveling	Manual
Display	Minimum 4" Color touch Display
Printer Structure	Printer Should build with 45mm Aluminum Structure to provide a solid and stable structure which protects against vibration resulting in better quality in printing parts
XY Motion	Precision linear guide way
Z Motion	Z Motion should control through ball screw mechanism
Connectivity	USB Drive, SD Card
Print Bed Adhesion	Printer should support easily available and affordable adhesive
Filament Compatibility	Printer should be capable to print with 1 kg spool
Layer Resolution	200 µm to 900 µm
Maximum Layer Resolution	0.2 nozzle 0.16mm, 0.4 nozzle 0.3mm,0.6 nozzle 0.48mm,0.8 nozzle 0.6mm,
Build Plate Temperature	45° - 100° Celsius

Nozzle Heating Time	20°C-200°C-1'15"/250°C-1'50"/300°C-2'35"
Power Requirement	Max 500W and Compatible to 15A
Slicing Software	3D Printer Should integrated with professional advance 3D part manufacturing software with integral project management capability such as project sharing, part management, slicing view , simulation
Software / Slicer Firmware updates	The slicing software should allow for greater control of printing parameters while providing presets for all OEM compatible materials as well as open-source materials
File format support	wrl, stl, dwg, dxf, 3mf, pr, obj, iam, 3dm, prt,ckd,psd,ai,sat,cgr,ipt,bdf,brd,slddrw,sldasm,ifc,idh,asm,igs,xas,vda,emn,psm,asmdot,drwdot
Preset print profile	The OEM Slicing software should be intuitive, easy to use and embedded with preset print profiles for every material to facilitate smooth learning curve for beginners as well as amateurs to trim down preprocessing setting time.
Supported OS	Windows 10, 64 bit operating system
OEM filament as well as third party open-source material compatibility	ABS, ASA, PA(NYLON), PET-G, PLA , PP

OPERATION

Materials for FDM include polymers such as ABS, PLA, PETG and PEI, which the machine feeds as threads through a heated nozzle. To operate an FDM machine, you first load a spool of this thermoplastic filament into the printer. Once the nozzle hits the desired temperature, the printer feeds the filament through an extrusion head and nozzle.

This extrusion head is attached to a three-axis system that allows it to move across the X, Y and Z axes. The printer extrudes melted material in thin strands and deposits them layer by layer along a path determined by the design. Once deposited, the material cools and solidifies.



3D printing involves three steps:

- 1.) Make or download a 3D model
- 2.) Slice and export the 3D model
- 3.) Build the 3D model

We use Cura which is an open source slicing application for 3D printers, which will slice 3D files for any 3D printer brand/model. The software supports STL, 3MF and OBJ 3D file formats. Slice software is the software that prepares 3D models for printing and turns them into instructions for the 3D printers.

Note: At the time of preparation of this manual Windows 11 does not fully support the Cura application and you may encounter issues during installation. We strongly recommend you to use Win 10 version.

First you create a 3D CAD file using Autocad or Solid Works. Then the CAD file has to be exported to an .stl extension which is then sliced using Cura.

You have to create printer profile, select your printer.

Select one or 2 nozzles. If using 2 color material, select 2 nozzles.

Select PLA as the material, if your spool has the same, or a different material can be selected.

Then Select infill / Support material.

Based on the material some predefined parameters are fixed. Viz. temperature etc, layer resolution as fine or course. Or you can use standard / normal profile.

Once the parameters are done, we can slice it and Cura will convert it to gcode file. Once the file is sliced it will show the time for the 3D printing, and now this file can be transferred to an SD card which will be inserted in the 3D printer.

Before using the 3D printer for printing the gcode file, you can run through the common commands shown on the GUI such as homing, you can also do bed levelling etc. Levelling should be done only after prolonged operation / 2-3 weeks. Or after you have shifted / transporting the unit.

SAFETY AND MAINTENANCE

Do not touch the nozzle and build plate during printing.

Do not touch the hot nozzle after finishing printing.

Do not leave the device unattended for long.

Do not make any modifications to the device.

To lower the build plate before loading/unloading filament. (The distance between the nozzle and build plate should be kept at least 50mm)

SERVICING SHOULD BE CARRIED OUT ONLY BY TRAINED ENGINEER.
