

# **User Manual**

## [MD-400D 3D Printer]

\*Please read this guide carefully before using this printer



#### Shenzhen MINGDA TECHNOLOGY CO., LTD

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## Notice

This machine is suitable for printing filaments within 320 degrees.

	1-10 Recommend High Temperatu	ıre 11	-14 Recommend Normal
	Filament	Print Temperature	Print Platform Temperature
1	PET-CF		
2	PET-GF	280-320°C	60-80°C
3	PA12-CF		
4	HtPA-GF	300-320°C	70-90°C
5	HtPA-CF	500 520 C	10 50 C
6	HtPA	280-320°C	70-80°C
7	ABS-GF25	250-270°C	90-110°C
8	ASA	250-270°C	90-110°C
9	S-Mulit	260-280°C	60-80°C
10	S-HtPA	270-280°C	60-80°C
11	ABS	240-260°C	80-100°C
12	PETG	230-250°C	80°C
13	TPU 95A	210-230°C	50°C
14	Ρ٧Α	210-220°C	60-70°C
15	PLA	190°C	60°C

## **Precautions for the Use of High Temperature Filament**

**Note:** Please put the high-temperature filaments in a dry box for printing, otherwise humidity will affect the print quality.

If the high-temperature filament is not used up, put it in an aluminum foil bag in time. If the filament is wet or the surface of the print has obvious drawing, it means that the filament is damp, and it needs to be dried in an industrial oven before use.

## **Reference video:**

Operation video and after-sales video, please refer to the video in the SD card.



## 1. Brief Introduction

MD Series Industrial 3D Printers adhere to the design concept of the simple to the extreme. It can print product quickly and easily, even if you've never used a 3D Printer.

The printer prints the model with PLA, so the products will be strong and durable. You can make drilling, tapping, grinding and painting on the PLA models. MD Series 3D Printers combine proprietary hardware, software and filament technologies creatively.

Welcome to a new world of 3D printing!

#### **User-Guide Instructions**

This User Guide has been carefully organized into "Installation", "Operation", "Maintenance" and "Troubleshooting" sections for client to read and understand. Be sure to read the sections carefully to get the best use of your 3D printer.

#### **Learn More Information**

SD card provides the electronic user guide. This guide provides information as following topics:

- 1. Troubleshooting information
- 2. Important safety statements and regulatory information
- 3. Printing supplies related information
- 4. Detailed instructions for use

You can also find more information on the official website. <u>http://www.3dmingda.com</u>

#### **Safety Precautions**

The following precautions ensure that the customer uses the printer correctly and protects the printer from damage. Please always follow these precautions.

1. Use the specified power supply voltage. Do not connect multiple devices to the printer's power outlet to avoid overload.

2. Make sure the printer is properly grounded, Or it may cause electric shock, fire or electromagnetic interference.

3. Contact your after-sales or local service before disassembling or repairing the printer by yourself. Check the "Support" section in the User Guide.

4. It is recommended to use the power cord that came with the printer. Do not damage, cut or repair the power cord. Damaged power cords present a risk of fire or electric shock. Please replace the damaged power cord with a quality-certified power cord. Do not allow metal or liquid to come into the printer and contact with the internal parts of the printer. It may cause fire, electric shock or other serious accident.

5. Turn off the printer and unplug the power cord from the electrical outlet under the following conditions:

1) The printer emits smoke or emits an abnormal smell.

- 2) The printer emits abnormal noise that has never occurred during normal operation.
- 3) Metal or liquid (not required for cleaning or routine maintenance) come into the printer.
- 4) Thunderstorm weather.
- 5) Power off

This guide contains the following categories.

A Note: potentially dangerous situation, if not avoided, may result in minor or moderate injury.

A Warning: potentially dangerous situation, if not avoided, may result in serious injury.

Migh temperature surface: The high temperature surface symbol indicates the presence of high temperature equipment. When working near hot parts, be careful and wear safety gloves.

Gloves: When performing some maintenance procedures, the machine may be hot, so need to use gloves to avoid burns.

Safety glasses: Please wear safety glasses to avoid eye injury.

Lifting hazard: Two or more people should cooperate when lifting, so as not to cause serious injury.

Recovery: Use the correct method for recovering materials and packaging materials.

**FED** Sensitivel ESD: Use standard electrostatic discharge (ESD) precautions when working with or near electronic components.



## 2. Overview

The printing process of the MD series 3D printer is as follows: the slicing software CURA convert the .stl document into a .gcode document, and 3D printer read the .gcode document and print the raw material into a 3D product.

MINGDA-CURA is a slicing software that runs on Windows XP, Windows Vista, Windows 7, Windows 8, or Windows 10.

The product size and print size of MD series 3D printer are as follows. Each filament holder can hold at least 1kg of printed filament, 1 kg filament can continue to print for about 120 hours, you can also add a second roll of filament for continuous printing.

Model	Product Size (W*D*H)mm	Printing Size(W*D*H)mm
MD-400D	758*660*890	400*400*400

MD Series Industrial 3D Printers have Resume Printing Function and Filament sensor, which can greatly save the client's losses.

**Resume Printing Function**: During the printing process, if the power is off, the machine will save the data. After powering on, follow the on-screen prompts to continue unfinished print jobs.

**Filament sensor**: If the filament is used out during printing, the machine will automatically pause printing, install new filament, and click the Continue button on the screen to continue printing.

(Note: This machine does not support the detection of transparent materials.)

Below we will take MD-400D as an example to introduce the function and use of the printer:



## **View of 3D Printer**



In this 3D printer, the print head moves in the X-axis (left and right) and Y-axis (forward and backward) directions on the panel, and the entire panel moves in the Z-axis (up and down) direction. The printing platform is fixed when the printer is working.



## **Tool Box Accessories**



**Diagonal pliers** 

Power cable



Sleeve



SD card



Card Reader



Allen wrench

**Note:** The picture is for reference only. When the real thing is inconsistent with the picture, the actual object shall prevail.



## 3. Installation

In a good ventilation and dry environment



Insert a power socket



Please press and hold for 3 seconds to turn on the printer



Click the shutdown button of the screen "MENU" interface to shut down



#### Introduction to machine operation page



	Primary interface	Explain
1	<u>Preheat</u>	Pre-set nozzle & hotbed's temperature
2	Nozzle	Pre-set nozzle's temperature
3	Bed	Pre-set hotbed's temperature
4	Leveling	Autoleveling (No other operations shall be done during auto leveling)
5	Menu	Printer's printing value adjustment
6	Print	Start print



## Duplicatio Mode / Mirrored Mode / Autopark Mode

**Reminder:** When starting the Duplicatio / Mirrored printing mode, the two extruders are printed at the same time at the left and right ends of the hot bed. Therefore, when slice, we need to put the model at the left end of the hot bed. When the two extruders are printed at the same time, they will not interfere with each other to produce collisions, so as to achieve the effect of Duplicatio / Mirrored printing.



**Open the duplicatio mode:** select "Menu" , "Set nozzle" , "Duplicatio" , at this time the opportunity to squeeze out of the way, then return to the previous step, click "Move" , "X-" , The extruder 2 will move to the middle of the hot bed. The extruder 1 will move to the left to the lower left corner of the hot bed. At this time, the distance between the extruder is fixed, and the duplicatio mode is successfully opened.





Open the mirrored mode: select "Menu" 👬 , "Set nozzle" 💽 , "Mirrored " 🔟 , at this time the extruder will have a return movement, and then return to the previous step, click "Move" 🐼 , "X-" 💽 , The extruder 2 will move to the right to the lower right corner of the hot bed. The extruder 1 will move to the left to the lower left corner of the hot bed. At this time, the distance between the extruder is fixed, and the mirrored mode is successfully opened.

Ready			Menu	Ę	• 25/0  25/	0 555 25/0	Set nozzle			
6	T0 555 Bed 30/0 30/0	<u>.</u> .		-	•)](•	С С		\$		
Preheat	X:0.0 Y:0.0 Z:0.0	Leveling	Home	Move	Extrude	PowerOff	то	Autopark	Duplicatio	Mirrored
	Status     3D Printer Ready	يتي ا	<b>\$</b> °	<b>9</b>			-			
Menu		Print	Settings	Set nozzle		Back	2nd offset	Z Align		Back
Menu	♣ 25/0 ♣ 25	/0 <u>5</u> 25/0	Move		X:0.00 Y:	0.00 Z:0.00				
Menu	₹ 25/0 ₹ 25	/0 <u>\$\$\$</u> 25/0	Move		X:0.00 Y:	0.00 Z:0.00			<b>I</b> =:	2
Menu Home	₹ 25/0 ₹ 25 400 € 25/0 € 25 Move Extrude	/0 55/0	Move Z-	Y+	X:0.00 Y:	0.00 Z:0.00			<u> -</u> :	2
Menu Home	₹ 25/0 ₹ 25 100 100 100 100 100 100 100 100 100 100	/0 ₩ 25/0 PowerOff	Move Z-	Y+	X:0.00 Y: <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b>X:</b> <b></b>	0.00 Z: 0.00				2

**Open the Autopark mode:** select "Menu", "Set nozzle", "Autopark", at this time extruder will have a return action, and then return to the previous step, click "Move", "X-", Left print head will move to the right. If you want to move another print head, return to the mode selection interface, click T0 to switch to T1, and return to the mobile interface to move the right print head.



Note: The machine will be reset to free mode after each restart



## 4. Machine calibration

1. Prepare an A4 paper and place it between the left print head and the platform. Click the reset button to initiate the reset process. Once the reset is complete, click on the Z-axis movement option to raise the platform to its highest position. Click on the unlock motor button and manually move the print head to make the nozzle sequentially move to the four corners and the center of the platform. Simultaneously adjust the corresponding four knobs to ensure that the print head is just pressing against the A4 paper. Gently pull the A4 paper, and if the nozzle leaves a slight mark on the paper, it means the leveling is satisfactory.

[Note: In general, the device is already pre-adjusted at the factory, so you can skip this step and proceed directly to automatic leveling.]



2.After adjusting the left print head, you can manually move the right print head to check if the distance between the right print head and the hotbed is consistent with the left print head. If they are not aligned, you can manually adjust the distance between the right print head and the platform to match the distance between the left print head and the hotbed. There is a screw at the back of the right print head that can be loosened to roughly adjust the height of the right print head. Once adjusted, tighten the screw to secure it in place.

[Note: In general, the device is already preadjusted at the factory, so you can skip this step and proceed directly to automatic leveling. However, if there is a significant deviation or if you require precise calibration for duplication or mirror modes, you can refer to the instructional video on the SD card or the official website for adjustment instructions.]





#### 3. Adjust the Z-offset by ZAlign.

Click the Save button to save the settings.

First click Menu-Home-Home for and wait for the machine to reset.



Then take a piece of A4 paper and put it between the nozzle and the hot bed, and click Menu-Set Nozzle-Z Align in the screen. The default calibration is T0 extruder (left extruder) extruder heat bed starts to move until it stops. Move the A4 paper by hand, and adjust the Down and Up keys on the screen until the nozzle can scrape the A4 paper. Calibration of the left extruder is complete.

Click the T0 button on the screen to switch the T1 extruder (the right extruder), and the right extruder will move to the middle position. Adjust the Z-offset to an appropriate distance in the same way.

➡ 25/0 ➡ 25/0 <u>₩</u> 25/0 Menu Set nozzle 0] Duplicatio Extrude PowerOf Mirrored 2nd offset Back Back Settings Offset 2nd Nozz Offset 2nd No. yStep vStep 0.00 0.00 Probe Offset Prohe Offset 0.10.1mm 0.1mm

4.Click the leveling button 🗾 , then click the start button 📩 to initiate the automatic leveling process. The left print head will begin to move and perform the automatic leveling procedure.

[Note: Please do not insert your hand into the printer enclosure during the leveling process to avoid any potential

#### injuries or accidents.]







5.Calibrate the Z-axis offset for the left and right print heads. Click the Z-axis calibration button, and the left and right print heads will automatically move to the right front switch to touch the calibration limit switch one by one. Once completed, the machine will automatically save the data.

[Note: If during the calibration process the print head does not align with the switch and causes a collision, please immediately click the emergency stop button to shut down the machine. For specific instructions, please refer to the instructional video on the SD card or the official website.]

#### Install the filament (Take PLA filament as an example )

1. Hang two volumes of PLA Filament on the scraping pole in the left and right Filament box, and insert the Filament from the inlet port until the Filament are exposed to the printed head along the guide pipe.





2. Press the gas joint, pull out the guide tube, pull the handle of the inlet port, insert the Filament into the squeeze machine into the material mouth.







3. Long press the screen button to turn on, first click the reset button  $200 \,^\circ$ C, and automatically heating the nozzle to 200  $\,^\circ$ C.



4. When the temperature of the nozzle rises to 200 °C, insert the filaments into the extruder, click "Menu" . "Extrude" , click the Load button to enter the feed, click the extruder button, and switch to another head for the crowding operation.



5. After the filament feeding is completed, insert the guide pipe.





## XY-axis offset calibration for the left and right print heads.

First, insert the SD card, click calibration gcode folder and chose "calibration accuracy 0.1.gcode" to print.



Rendering



After printing, compare the calibration lines again and note the value of the line that aligns with the baseline. Enter the machine parameter settings interface and input the corresponding offset value. Save the settings.



Enter the machine parameter settings interface and input the corresponding offset value. Save

the settings.





## Verify the XY-axis offset for the left and right print heads:

Print the verification file named "Calibration two-color square testing.gcode" from the SD card.

When the printing is complete, please compare the printed two-color square with the sample graphic, and check whether there is an obvious gap between the color squares.



1. If there is no gap between the color blocks, it means that the XYZ direction offset value of the right nozzle is within a reasonable range. Offset calibration is complete.

2. If there is a gap between the color blocks, re-calibrate the XY direction offset value of the right nozzle.

Repeat the printing process until the testing square is successfully.



### **Printing the Test Files**

Click on the Print icon 📩 , choose a gcode file which you want to print.

Tip: You can adjust the babystep according to the adhesion of the first layer of filament. After the adjustment is completed, click Save, then you can print directly next time without any adjustments.





If the distance between the nozzle and the platform is too high, the filament will not easy to stick to the platform. Should click "Decrease" until the distance is proper.



Keep a proper distance between the nozzle and the hot bed, so that the filament stick to the hot bed evenly.



If the distance between the nozzle and the platform is too low, the filament will be not easy to feed out smoothly . Should click "Increase" until the distance is proper.

## **Printing Process**



- 1. Insert the SD card.
- 2. If not leveled, run the auto-leveling procedure first.
- 3. Preheat the head and bed, check whether it feed smoothly.
- 4. Click "Print" icon 烹 on the display panel.
- 5. Choose the Gcode file to print.
- 6. After the printing is completed, Wait for the platform to cool down, then take out the model gently.





#### **Pause and Continue to Print**

While printing files, you can pause it at any time.

1. When printing, you can click Percentage rate icon to adjust printing speed .And click icon to change the printing speed by percent.

2. Press the pause icon **u** on the display panel, the mprinter will be suspended to print, press again to continue.

3. When printer pause, you can feed the filament and change another filament.

4. If press stop icon 🔀 , the printer will stop printing.

5. The printer will automatically shut down after printing finished.





## 5. Software

MD series 3D printers work with a variety of slicing software, such as Cura, Simplify 3D, Repetier-Host and so on. Now we will introduce MINGDA-CURA\_x.xx.xx in detail, you can learn how to set the printing parameters, which will help you to become more familiar with the slicing software and print the first sample successfully.

First, you can find the MINGDA-CURA\_x.xx.xx from the SD card, and install it on your computer.

#### **Install CURA**

- 1. Double click MINGDA-Cura\_x.xx.xx.exe to install
- 2. Install the software by default as follows.

#### Step 1: Add a printer

- 1. Double click MINGDA-Cura\_x.xx.xx.exe to install
- 2. Install the software by default as follows.



#### **Click Add printer**

Untitled - MIN	IGDA Cura ew Settings Extensions	Preferences Help				12	D X
MINGD	Acura		PREPARE PREVIEW	MONITOR		Marketplace	About US
	Mingda 400D	Generic PLA 0.4mm Nozzle	Generic PLA 0.4mm Nozzle	V Standard Q	uality - 0.2mm	🔀 20% 🏠 Off 냎 On	~
						/	
	Add printer M	/anage printers				/	
						/	
						/	



#### MD-400D

Select the printer model you want to use, such as MD-400D, and then click [Add].

Add a non i	notworked printer			
Add a non-i	networked printer			
<ul> <li>Mingda</li> </ul>		chow	1000	
Mingd	la 1000Pro	Imigua	4000	
Minad	la 1000Prot		Mingda	
O Mingd	la 400D	2 uthor	Mingda	
- minigo	10-911	Phinter name	Mingda 400D	
O Mingd	la 600Pro			
Mingd	la 600Pro+			
Mingd	la 6H			
Mingd	la AD			
Mingd	la D2			
Mingd	la D3/Pro			
Mingd	la D4 Pro			
Mingd	la Magician Max			
O Mingd	la Magician Max2			
Mingd	la Magician Pro			
O Mingd	la Magician Pro2			
Mingd	la Magician X			
O Mingd	la Magician X2			
Mingd	la Rock3/Pro			
Custom				

The printer settings parameters have been set and do not need to be changed by the user.

	Mag	chine	e Settings						
Mingda 400D									
Printer		Extr	uder 1	Extruder 2					
Printer Settings			Printhead Settings						
X (Width)	400.0	mm	X min	-20	mm				
Y (Depth)	400.0	mm	Y min	-10	mm				
Z (Height)	400.0	mm	X max	10	mm				
Build plate shape	Rectangular	~	Y max	10	mm				
Origin at center			Gantry Height	25.0	mm				
Heated bed	•		Number of Extruders	2	~				
Heated build volume			Apply Extruder offsets to GCode	•					
G-code flavor	Marlin	~							
Start G-code			End G-code						
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Click 'Next' to proceed.



## Step 1 Import Model



Click on the file icon in the upper left corner to open the sample model xxxx.stl.

Adjust the angle through the rotation command.





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Adjust to the desired model size through the zoom command.

Adjust to the desired position by moving the command

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## Step 2 Start slicing

The MD-400D is an independent dual nozzle 3D printer that can be switched between three modes on the machine. They are duplicate mode, mirror mode and free mode.

During the process of using MINGDA CURA, users will have four different usages: duplicate mode, mirror mode, print support, and print dual color. The following manual introduces the usage of this slicing software in these four ways.

The slicing software will display print head 1 and print head 2, where print head 1 corresponds to the left print head of our machine and print head 2 corresponds to the right print head of our machine.

## **Duplicate Mode**

Printing size: X \* Y \* Z: 200 \* 400 \* 400mm

Copy mode printing process: Slice a single nozzle, select Copy mode on the machine, and then print.

Note 1: The red line marking is half the printed size, and the sliced model must be located to the left of the red line. Otherwise, the right head will hit the outside of the platform or collide with the aircraft. In the actual printing process, the left head will print on the left side of the red line, and the right head will print on the right side of the red line.



Note 2: Printing head 1 should be used for slicing, and printing head 2 can be temporarily disabled. As shown in the figure

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## **Mirror Mode**

Printing size: X \* Y \* Z: 170 \* 400 \* 400mm

Mirror mode printing process: Slice a single nozzle, select Mirror mode on the machine, and then print.

Note 1: When selecting mirror mode, the sliced model can only be located on the left side of the red line, with a size of 170mm. If it exceeds the left red line, the left and right heads will collide during the printing process. In the actual printing process, the left head will print on the left side of the red line, and the right head will print on the right side of the red line.



## **3.Printing support**



Printing size: 400 \* 400 \* 400mm

#### Enable print head 2 first

Support mode printing process: slice, select free mode on the machine, and then print.

Reminder: When performing support printing, Extruder 1 uses the materials required for the model, while Extruder 2 uses the supporting materials matched with the model materials. If high-temperature materials are used, we need to put them into a drying box for printing to prevent moisture from affecting the printing quality.



Left click to select the model, and right click to select Print Head 1 or Print Head 2 to print the main body of the model.

#### Select print head 1 here

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The type of support and platform attachment can be specified according to one's own needs, which print head to use.

#### Select print head 2 here

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Raft Smoothing	0	5.0	m	m



Click Slice, click Preview, select material color

As can be seen, the wine red area is the main body of the model, which will be printed by Print Head 1, while the purple area is the support and bottom valve, which will be printed by Print Head 2.

Print head 1 and print head 2 can set different printing parameters such as printing temperature and printing speed to achieve the application of water-soluble support and easily peelable support.





## 4.Print two colors

Printing size: 400 \* 400 \* 400mm

#### **Enable Print Head 2**

Image mode printing process: slice, select free mode on the machine, and then print.

Taking the dual color Earth as an example, the dual color Earth is composed of two models. First, specify print head 1 and print head 2 according to your own needs





Press and hold the Ctrl key to select these two models, or Ctrl+A can select all models, and then right-click to select the merged models to automatically align.







After alignment, if the result is not aligned, it can be manually moved or rotated to visually align it. The reason is that the model coordinate system was not aligned during model design.

Unsupport, slice, preview.

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## Tips for printing support and dual color models

1. Import the model to be printed, right-click on the model, select Extruder 1 to print the model, start the support, and select Extruder 2 to print the support.



#### 2. Adjust the "standby temperature" in the "Material" interface.

## Standby temperature: The unprinted nozzle will drop to the set temperature during the printing process

For example, suppose the left nozzle is in an idle state when printing, but due to the high temperature, the filaments melt into a liquid state and drip onto the model due to gravity, causing the printing of the model to fail. To avoid this issue, the idle nozzle temperature can be reduced to a state where filaments do not drip. But relatively speaking, it will increase the printing time.



#### 3. You can select the type of base plate attachment in the "Print Platform Attachment" tab.

#### Additional types of base plates include Raft, Brim, and Skirt.

**Raft** prints several layers of valve body similar to the base structure before printing the model. This function can enhance the adhesion between the model and the printing base plate, reducing the risk of model warping;

Note:

- 1. It is not recommended to print Raft when printing flexible materials;
- 2. It is not recommended to use PVA filaments to print Raft structures;
- 3. If the model size is greater than 150mm, it is recommended to prioritize using Raft structure.

**Brim** refers to a single layer that extends outward on the bottom layer of the model, which can enhance the adhesion between the model and the printing substrate.

**Skirt** refers to the material layer extruded around the bottom layer of the model, ensuring stable flow when printing the model.

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#### 4. Double extrusion: Start the filling tower

Due to the fact that there is always a printer in standby mode during the printing process, it is easy to cause defects such as wire drawing and material leakage. After starting the loading tower, the extruder will print on the loading tower before each printing, printing any material leakage on the printing head on the tower, effectively avoiding the phenomenon of material leakage when replacing the extruder.





Note: The printing position of the loading tower cannot coincide with the model



## 6. General Maintenance

#### **Daily Preventive Maintenance**

1. Before printing, reset the Z-axis to check the distance between the nozzle and the platform to prevent the nozzle from scratching the platform.

2. Before printing, check the smoothness of the guide rails. Regular lubrication can ensure the printer runs efficiently and stably.

3. Before printing, preheat the nozzle to check feeding. If it is not smooth, clean or replace the print nozzle assembly.

4. After printing is completed, clean all the accumulated filament and stains on the printing platform, the guide screw and the inside of the printer.

5. Filament that are not used for a long time should be sealed and stored. Excessive absorption of moisture from the air can make the filament brittle.

#### **500 Hours Maintenance**

About every 500 hours you should clean up the printer.

1.Clean the door and do not use ammonia-containing cleaners to avoid damaging the window. An ethanol cleaner can be used.

2. To clean the guide rails, first wipe the sides of the guide rails with anti-rust paint and re-add lubricant.

3. Check the screws, check if the mounting screws such as the synchronous wheel, optical axis and motor are loose. If it is loose, it should be tightened in time.



#### **Replace the hot end**

1. Remove the screws on both sides of the print head cover (a total of 4);

2. Unplug the connecting terminal on the hot end and loosen the top wire that fixes the hot end;

3. Remove the entire hot end;

4. Insert the hot end that needs to be replaced, tighten the top screw when it is in place, and then plug in the connecting terminal.

5. Install the print head cover and circuit board protective cover







Note: After replacing the hot end, it is necessary to recheck the deviation values of the left and right heads. If the deviation is too large, it needs to be recalibrated

## 7. Trouble Removal

Problems	Suggestions
Without power	<ol> <li>Check whether the power cord is inserted firmly</li> <li>Check if the power switch is turned on</li> <li>Confirm whether the socket has power</li> </ol>
Not extruded filament	Filament may be stuck in the nozzle, please refer to <1000 hours maintenance>
Print misplacement	Please check the lubricating condition, wipe oil on the optical axis and evenly lubricate again. Another possibly reason is rack affected by external force during transport ( At the moment you need to contact MINGDA after sales service)
SD card read abnormally	SD card damaged; SD card slot damaged; SD card inserted deep insufficient; the slots line is loose.
Can't show temperature or heat	The temperature sensor the heater is in poor contact or damaged; the main board is faulty.



## 8. Support

#### **Customer Support**

http://www.3dmingda.cc/single/request\_after\_sales\_service.html

#### **Working Computer Specifications**

Operation system: MicrosoftWindowsXP、 MicrosoftWindowsVista or MicrosoftWindows7 Processor minimum value : 2.4 GHz, faster processor could shorten the processing time RAM minimum value: 1GB (WindowsVista or Windows7 is 2 GB) Recommendation: 2 GB (WindowsVista or Windows7 is 3 GB) Hardware installation: 90 MB monitor graphics resolution minimum value: 1024x768 Recommendation: 1280x1024 ( can use the wide-screen ) Necessary video card: In line with OpenGL accelerated graphics card Recommendation: OpenGL

hardware support to recommend 128 MB graphics card memory

#### **MINGDA Limited Warranty Statement**

Besides limited warranty, within the maximum range allowed by law. MINGDA or any authorized dealer have not made any other statements or implied guarantee, including marketability and special-purpose applicability of implied warranties. MINGDA has not supplied, undertake or provide, authorized to assume responsibility for it or any other guarantee, including any authorized dealer or other express or implied warranties to the independent third party.



### 9. Quality Assurance

1. We provide a 12-month warranty on 3D printers (excluding the nozzle assembly, PEI pad) purchased on or after June 1, 2019 and a 3-month warranty on the nozzle assembly.

2. The warranty period of each product starts from the date of production. Any product with renewed warranty period is subject to the renewed warranty terms.

3. Within the warranty period, we will provide free accessories to replace those damaged during the operation in accordance with the instructions for use which are not caused by user negligence (determined by our professional assessment).

4. We will continue to provide warranty services for any product having been repaired as long as its warranty period has not expired.

5. In case of any problem, you may find the solutions in the instructions for use or search for the solutions on our official website (www.3dmingda.com) or contact us via phone or email.

6. We provide free remote technical support for every consumer during the service life of the product. You may request solutions from our after-sales team via phone or email within working hours. For any request submitted beyond the normal working hours, we will reply as soon as possible.

7. Please provide completed after-sales service card or S/N number when applying or the warranty service. Otherwise, warranty services may be refused.

8. We are entitled to refuse warranty claims for any fault or damage due to failure to follow instructions for use, including but not limited to (i) unauthorized modification; (ii) incorrect installation or use; (iii) use of any third-party component; (iv) use of any non-specified software;(v) use of low-quality filament; (vi) use under non-specified environment; and (vii) misuse (overload) or improper maintenance (corrosion or oxidation).

9. We are entitled to refuse to provide warranty services for any fault or damage due to force majeure





## Shenzhen MINGDA Technology Co., Ltd



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