G40 Machine Parameters

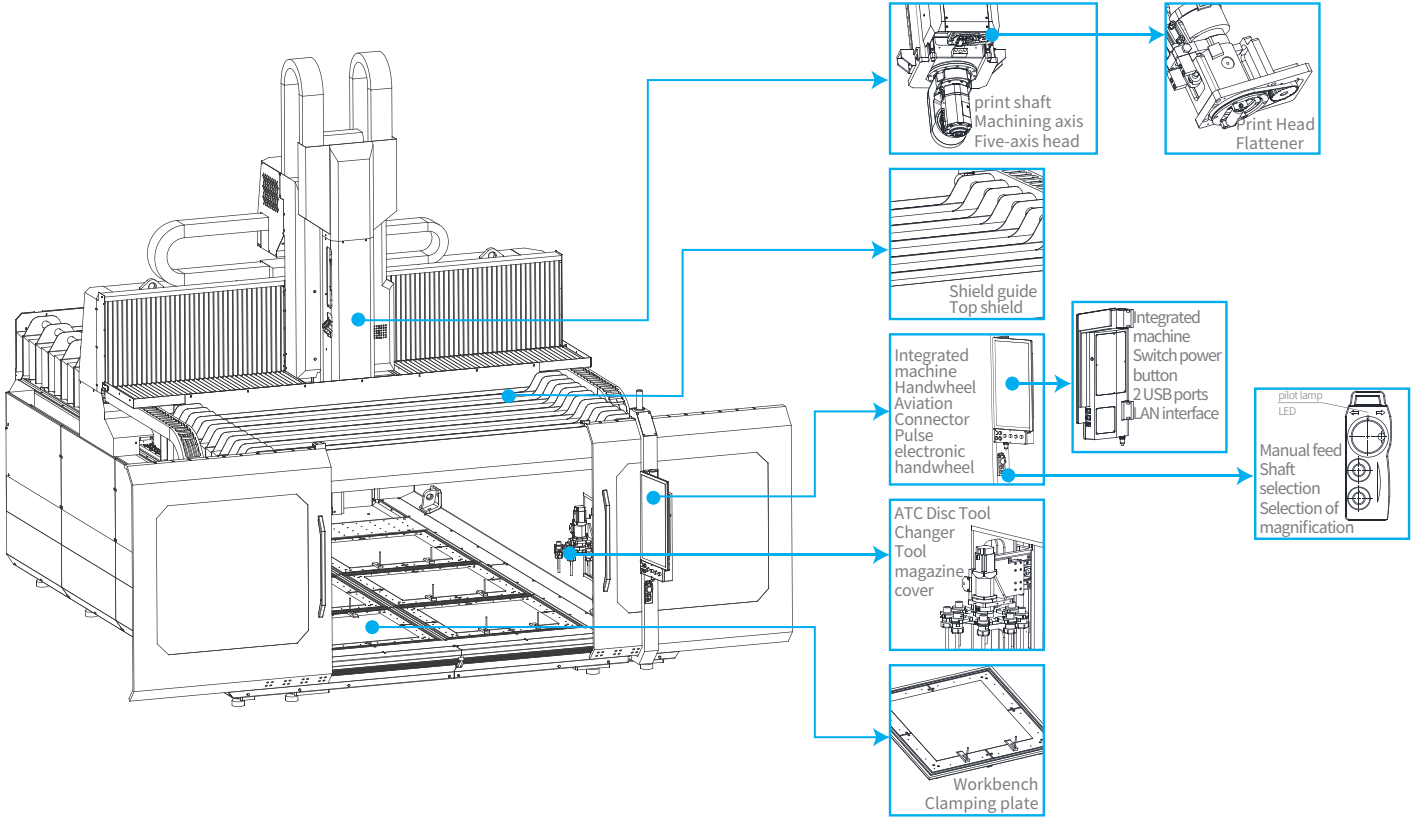
Print Mode					Processing Mode				
No.	Name	Project	Unit	Parameter	No.	Name	Project	Unit	Parameter
1	Print trip	X	mm	3725	1	Print trip	X	mm	3400
		Y	mm	2500			Y	mm	2500
		Z	mm	1330			Z	mm	1330
2	Printing desk	Printing Size	mm	3725×2500	2	Printing desk	Tablevacuumadsorption		Optional
		Printing station module	block	6			Flatness (normal)	mm/m²	0.1
		Printing table material		aluminum	3	Five-axis head	rotation angle	ASSE A	±120°
		Printing table load	kg/m²	500KG					
		Maximum heating	°C	200				ASSE C	±320°
		Heating plane temperature(200℃)	mm/m²	0.7					
3	Print axis	Maximum extrusion volume	kg/h	25			Spindle power	KW	8.5
		Nozzle Diameter	mm	3-8			hilt	type	HSK63F
		Maximum Nozzle Temp	°C	450			Spindle speed	r/min	24000
		Print head shut-off function		program control	4	Feed	Fast move X	m/min	30
4	Feed	Fast move x	m/min	30			Fast move Y	m/min	30
		Fast moveY	m/min	30			Fast move Z	m/min	20
		Fast moveZ	m/min	20			Maximum processing speed	m/min	10
		Maximum printing speed	m/min	10	5	Spindle cooling water cooler	model		QG-025LS-ZBA-1225
5	Feeder	Feeder specification		HLCS-75-Three-in-one			power	KW	2.2
		Storage	kg	75			Applicable liquid		Condensate
		Maximum drying temperature of feeder	°C	150	6	HSK-63F tool crib	HSK-63Ftool crib		8
		Feeding tube is heat resistant	°C	160					
		Feed Pipe Diameter	mm	38					
6	Thermostatic chamber	Working area thermostat chamber	°C	50					
7	smoothing board			program control					

G40 Machine Parameters

Other configuration parameters of the equipment			
1	System	OSAI OPENsmart	Italy
2	Slicing software		Piocreat Slicer
3	Operation interface		32 inch capacitor touch all-in-one machine
4	Manual feed		Speed regulating handwheel
5	Print material	type	PLA /PETG/PVC/ABS/PC/PA/HDPE/TPU/EVA PC+ABS/PETG+GF/PP+GF/PA+GF/ABS+GF/PC+CF
6	Processing materials	type	Plastic, carbon fiber and nonferrous metals
7	Three axis positioning accuracy	mm/m	0.032
8	Three axis repeated positioning accuracy	mm/m	0.018
9	Overall dimension	mm	5962×4220×4800
10	area covered	mm	5962×6020×4800
11	Lubricator		Automatic lubrication
12	Gas source	MPa	0.6
13	Total power of equipment	KW	About 65
14	Total weight of equipment	KG	About 15000

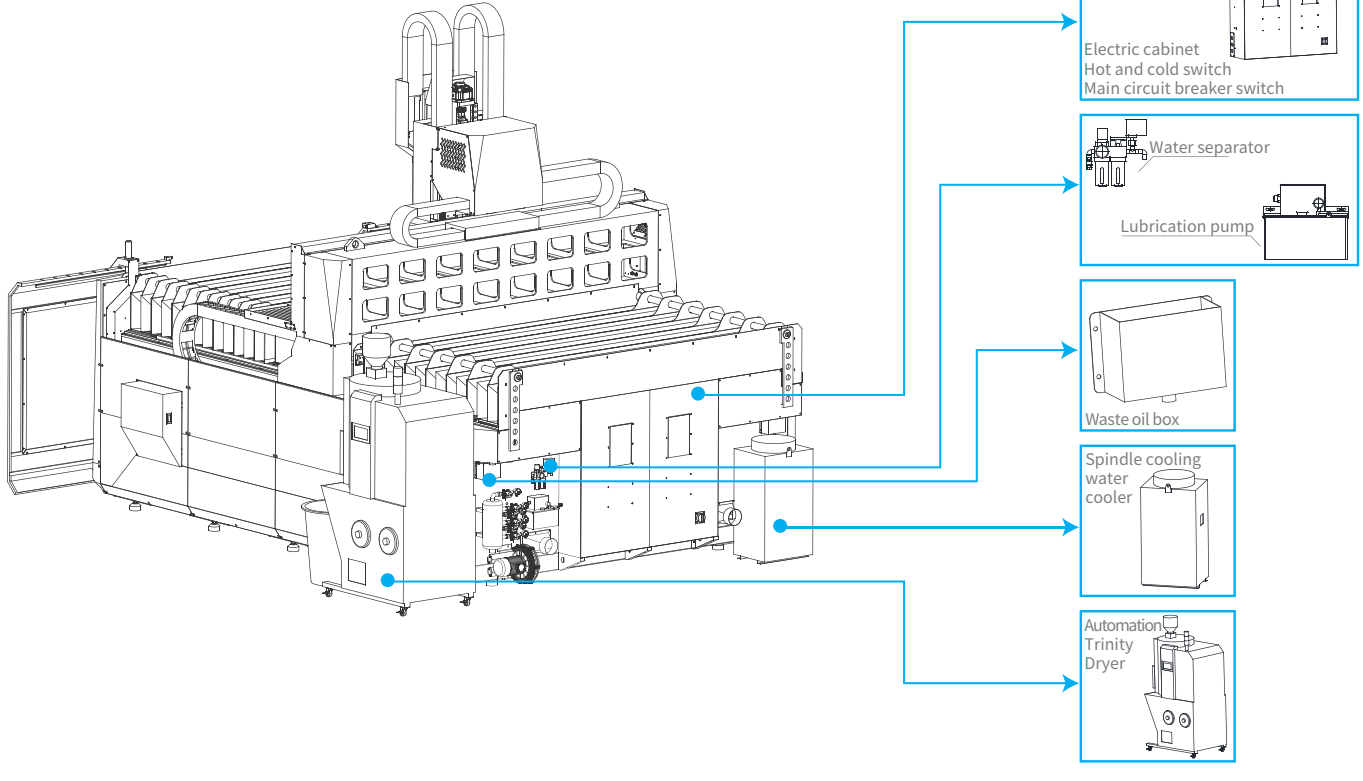
Operation Introduction of The Characteristics of Each Part

The following is an introduction to the names of the parts of the additive and subtractive materials, and some of the displayed characteristics are pointed out in the corresponding parts.



Operation Introduction of The Characteristics of Each Part

The following is an introduction to the names of the parts of the additive and subtractive materials, and some of the displayed characteristics are pointed out in the corresponding parts.



Machine Coordinate System

Movement direction name of each axis (Beams, Main axis and Printing Axes)	Definition of positive (+) and negative (-) movement of each axis	
X-axis: The processing axis and the print head move horizontally back and forth	+X: The beam moves backwards	-X: The beam moves forward
Y-axis: The processing axis print head moves laterally left and right	+Y: Spindle moves to the left	-Y: Spindle moves to the right
Z-axis: The machining axis moves vertically up and down	+Z: The spindle moves vertically upwards	-Z: The spindle moves vertically downward
W-axis: The print head moves vertically up and down	+W: The print head moves vertically upwards	-W: The print head moves vertically downward
P-axis: FDM print head extrusion volume	P-axis is only positive value for printing extrusion	
A-axis: The axis that rotates around X is the A-axis	+A: Rotate around X to move counterclockwise	-A: Rotate around X to move clockwise
C-axis: the C-axis that rotates around Z	+C: Rotate around Z to move counterclockwise	-C: Rotate around Z to move clockwise

Machine Positioning

1.Environmental requirements around the installation foundation

The machine should be installed as far as possible to avoid vibration, heavy humidity, close to heat source, corrosive gas and direct sunlight.

Specific requirements:

(1) Temperature allowable value: 0℃~45℃

(2) Relative humidity requirements: It must be less than 90% of the humidity change, and there should be no moisture condensation.

(3) The environmental humidity and temperature should be controlled as much as possible, and the environmental conditions should not be changed rapidly.

(4) The machine should not be placed in a dusty environment to avoid dust accumulation.

(5) It is forbidden to place the machine in an environment containing acid, alkali and other corrosive gases or liquids.

(6) It is forbidden to place the machine in an environment with strong magnetic field and strong static electricity.

(7) It is forbidden to place the machine in a hot light source or an environment where the sun can be directly exposed.

(8) It is forbidden to place the machine in an environment with ordinary and frequent vibration.

(9) It is forbidden to place the machine near electrical noise sources (such as air blowing compressors).

2.Machine tool installation area (please refer to the machine tool specification table)

3.machine positioning

(1) After the machine tool is transported to the designated position, slowly lower the machine.

(2) When the bottom of the machine is about 100mm away from the ground, the installer should align the center of the foot pad with the screw hole at the bottom of the machine, and then place it on the ground.

(3) Slowly lower the machine until the bottom of the machine is in full contact with the foot pads.

4.Machine Assembly

（1）Adjust the foot pads and use a jack if necessary.

（2）wiring

Main cable corresponding wiring		
L1	Yellow	25mm²
L2	Green	25mm²
L3	Red	25mm²
N	Blue	16mm²
PE	Yellow and Green	16mm²

There must be a separate three-phase four-wire system (380V/50HZ) main power supply access, the power line requires a cross-section of more than 25 square millimeters, and a 250A circuit breaker is added, and then connected to the machine tool through the transformer. The voltage fluctuation must be within the range of ±10%, and it must be relatively stable, and there are safety grounding measures, otherwise, it will affect the normal operation of the CNC system.

a.The machine equipment and the factory power system are grounded separately.

b.The ground wire must use an insulated wire of more than 16mm².

c.Use a copper rod ϕ30*1000 (mm) as the ground electrode, which must be buried vertically under the ground. If it is blocked by rocks, it can be buried horizontally at a depth of more than 1000mm underground.

(3)Remove the X, Y, Z-axis fixing blocks

a. Move 3mm in the positive direction of Z-axis in manual mode, and remove the shipping fixing plate between the spindle and the worktable.

b.Remove the X-axis shipping fixing block

c.Remove the Y-axis shipping fixing block

(4)Clean

a.power off.

(figure1)

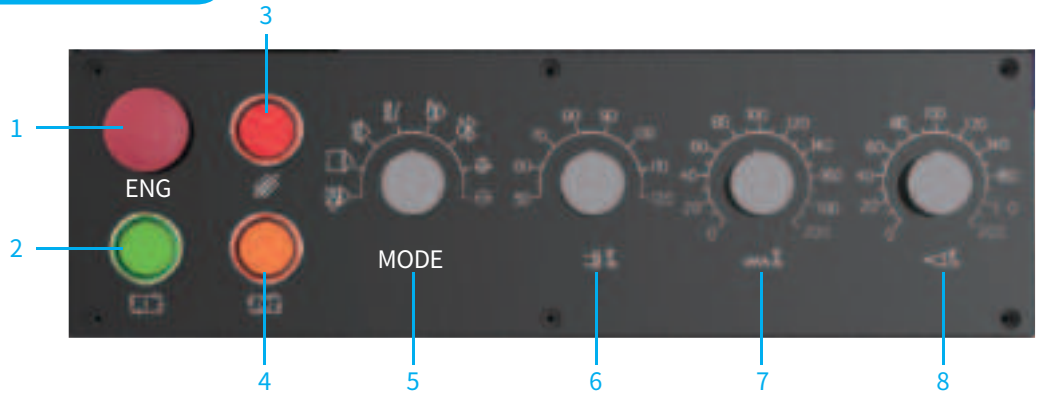
b.Before the machine leaves the factory, in order to prevent corrosion, the unpainted parts of the machine are coated with anti-rust oil, so it needs to be wiped clean with a cotton cloth dipped in cleaning solvent. When cleaning, special attention should be paid not to flow the cleaning solvent into the main shaft or other three shafts.

c.After cleaning, you need to apply a layer of lubricating oil on the original surface.

(5)level adjustment

a.Two spirit levels must be used for leveling，with an accuracy of 0.02mm/div.
b.The absolute level of the spirit level must be confirmed before adjustment. The method is as follows:
1)Place the spirit level at a fixed point on the workbench.
2)After the bubble is stable, record its position. When the bubble stops by rotating 180°, it must be compared with 0°, and the tolerance is allowed to be within 1/3 grid.
3)Place the spirit level in the center of the workbench **as shown in the figure1.**
4)Adjust the anchor bolts to adjust the horizontal bubble to the middle point.
5)Move the Y-axis to measure the two points before and after, observe the direction of the bubbles of the two spirit levels, and then decide to adjust the anchor screws.
6)Adjust the foot screw at the lower part of the bubble clockwise until the levels on the X and Z planes at the front and rear two points are within 1/4 grid, and the levels on the Y and Z planes are within 0.02m/m.
7)After adjustment, move the Y-axis to the center of the stroke, and the horizontal bubbles on the X-Z and Y-Z planes must be in the center.
8)Move the front, middle and back three points of the Y-axis, and measure the maximum difference of 0.02mm/M (about 3 grids).
9)Move the front, middle and back three points of the X-axis, and measure the maximum difference of 0.02mm/M (about 3 grids).

External Operation Panel



1.**Emergency Stop -** Stop all axis movements, stop the spindle, stop changing tools, and turn off the coolant pump.

2.**Cycle Start -** Run a program, this key can also run the program in graphics mode.

3.**Reset -** The machine will stop but we do not recommend this action to stop the machine as it will be difficult to continue from the point where it stopped.

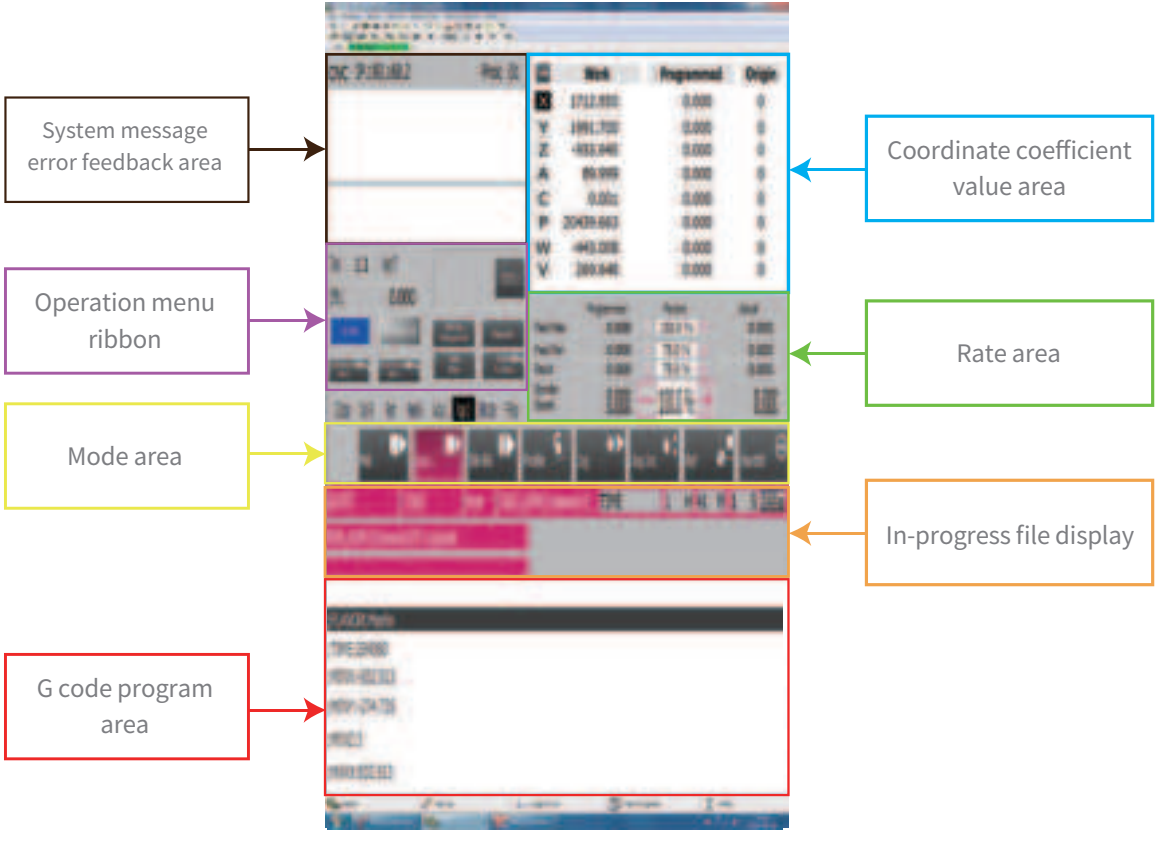
4.**Feed Hold -** The motion of all axes is stopped.
NOTE: The spindle continues to rotate during cutting.

5.Knob to select mode function.

6.Spindle rotation feed rate.

7.Movement speed feed rate.

8.Print the extrusion feed rate.


System message error feedback area
Operation menu ribbon
Mode area
G code program area
Coordinate coefficient value area
Rate area
In-progress file display

All-in-one touch screen operation interface

Mode area

Mdi mode—That is, manual data automatic execution mode.

Auto Mode—They are: "Single-step machining", "Selective block skipping", "Selective stop", "Teach mode", "Program restart", "Machine lock", "Machine dry run"

Blk-Blk mode—single break execution.

Profile mode—profile, appearance.

Jog manual mode—manual control

Jog Inc(Intelligent NC)—Intelligent CNC machining

Power Up / Restart—It is used for each axis to return to the zero position of the machine tool and to replace the tool.

Jog Handle—Used to jog all axes, used in tool setting or manual machining.

Operation menu ribbon

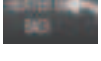
Work Light Switch
Turn on the work light in the machine.

Tool cooling
Blow air cooling of machining tools.

Part Program Management
For processing file program import

Diagnostic

Print head temperature control interface
Used to enter the print head temperature area for parameter modification and monitoring.



Temperature control interface of temperature control console
Used to enter the temperature control area of the temperature control platform for parameter modification and monitoring.

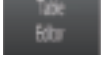


Table Editor

Auto home

1.**Spindle rotates forward**
(1) Function: Press this key to make the spindle rotate forward.
(2) Conditions of Use:
a.Only available in "rapid traverse" mode.
b.When the spindle rotates forward during automatic operation, the built-in light of this key will light up.
(3)When "Spindle stop" or "Spindle reverse rotation" is valid, the built-in light will be off.

2.**Spindle stop**
(1) Function: No matter the spindle is running forward or reverse, press this key to stop the spindle.
(2) conditions of use:
a.Only available in "rapid traverse" mode.
b.Not valid during automatic operation.
(3) When the spindle is stopped, the built-in light of this key will be on, but if "spindle forward rotation" or "spindle reverse rotation" is valid, the built-in light will be off.

3.**Spindle speed can be adjusted manually according to "+" and "-"**

4.**The feed speed can be adjusted manually according to "+" and "-"**

5.**Axial selection key function description**
In JOG MODE, pressing this key will move the corresponding axis FEEDRATE OVERRIDE speed to the "+" direction.
In JOG MODE, pressing this key will move the corresponding axis FEEDRATE OVERRIDE speed to the "-" direction.

Mdi Mode

Description: Manual data input, confirm the execution of the command during the running process, if you want to cancel the re-input, please press the reset key. When the command execution is completed under normal circumstances, it can be directly re-entered.

Manual data entry, confirming the execution of the command

Set the origin/knives

1. Create a coordinate center.
2. Enter the number of the origin preset.