

Step Number	Step Title	Parts list		Remarks
		Quantity	Part name	
1.1	Electronic Box - components 1	1	Power Supply	Remove the metal plate from the box to fix the components
		4	B-screw M4-8	
		1	Controller PCB	
		4	Standoff M-F M3+6+6	
		1	DC-DC Converter	
		2	C-screw M4-10	
		2	Lock Nut M4	
1.2	Electronic Box - components 2	1	Power Plug	
		1	Fuse	
		2	Counter Sunk M4-12	
		2	Lock Nut M4	
		1	Emergency Button	
1.3	Electronic Box - components 3	1	USB Cable Inside	
		1	USB Plug Cover	
		2	B-screw M3-16	
		1	Cable Gland M25	
		2	Cable Gland M16	
2.1	Electronic Box - wiring AC	1	Drivers Power Cable Outside	
		1	Router Cable Outside	
		1	Emergency Button Cable	
		1	Wire Connector 2 Slots	
		2	L Jumper Cable	
2.2	Electronic Box - wiring DC 1	1	Wire Connector 5 Slots	
		2	Wire Connector 3 Slots	
		17	Wire Connector 2 Slots	
		1	Terminal Board Cable	

Step Number	Step Title	Parts list		Remarks
		Quantity	Part name	
		2	Mosfet	
		1	Door Jumper	
2.3	Electronic Box - wiring DC 2	6	MM Jumper Cable	
		3	PCB Driver Cable	
		2	ZY-limit Cable	
		1	X-limit Cable	
3.1	Prepare Side Plates 1	1	Side Plate Right	The side plates are mirrored.
		1	Side Plate Left	Push the linear guide inwards while tightening the screws to align it.
		2	Y Linear Guide	Carefully insert the carriages in the linear guide.
		28	C-screw M4-20	
		4	Carriage XY	
3.2	Prepare the Side Plates 2	2	Profile	The side plates are mirrored.
		10	C-screw M5-16	
		10	T-nut M5	
		2	Y-chain Bottom Holder	
		2	C-screw M4-10	
		2	Hammer Nut M4	
		4	Foot	
		4	T-nut M8	
		4	Nut M8	
4	Prepare Y Ball Screw	2	Y Ball Screw	
		1	Y Screw Block Right	

Step Number	Step Title	Parts list		Remarks
		Quantity	Part name	
		1	Y Screw Block Left	
		8	C-screw M5-25	
5	Prepare Front Plate	2	Rubber Stopper	
		2	C-screw M3-10	
		1	Emergency Button	
		1	Emergency Button Cable	
		1	Front Plate	
6.1	Prepare Back Plate 1	1	Back Plate	Fix the motor with cables pointing outwards.
		2	Motor Driver	Do not tighten the motors yet.
		4	C-screw M5-10	
		2	Y-motor	
		8	C-screw M5-20	
		8	Washer M5	
		8	Lock Nut M5	
6.2	Prepare Back Plate 2	2	Pneumatic Connector 6 Threaded	
		1	Pneumatic Connector 4 Threaded	
		1	Y-endstop Sensor	
		2	C-screw M3-20	
		2	Rubber Stopper	
		2	C-screw M3-10	
7	Fix Prepared Front Plate	1	Prepared Front Plate	Insert the 12 T-nuts in the top slot of each profile.
		2	B-screw M8-30	
		2	C-screw M6-25	
		2	Hammer Nut M6	
		24	T-nut M5	
8	Fix Prepared Back Plate	1	Prepared Back Plate	
		2	Prepared Y Ball Screw	
		2	Ball Screw Lock Nut	
		2	Y Bearing Holder	

Step Number	Step Title	Parts list		Remarks
		Quantity	Part name	
		4	C-screw M3-10	
		2	B-screw M8-30	
		2	Hammer Nut M6	
		2	C-screw M6-25	
9	Fix Side Inner Covers	2	Side Inner Cover	
		10	C-screw M3-6	
10	Prepare X Ball Screw	1	X Ball Screw	
		1	X Screw Block	
		6	C-screw M5-16	
11.1	Prepare X-axis - linear guides	2	X Linear Guide	Tighten the linear guides while pressing it against the inner side of the pocket to align.
		20	C-screw M5-25	
		1	X-chain Bottom Holder	
11.2	Prepare X-axis - right shoulder	1	Right Shoulder	
		2	C-screw M6-40	
		2	Hammer Nut M6	
		1	Nut M6	
		1	C-screw M6-30	
11.3	Prepare X-axis - carriages	4	Carriage XY	Carefully insert the carriages in the linear guide.
		2	Rubber Stopper	
		2	C-screw M3-10	
11.4	Prepare X-axis - left shoulder 1	1	Left Shoulder	
		1	Prepared X Ball Screw	

Step Number	Step Title	Parts list		Remarks
		Quantity	Part name	
		1	Ball Screw Lock Nut	
		1	X Bearing Holder	
		2	C-screw M3-12	
		1	Nut M6	
		1	C-screw M6-30	
11.5	Prepare X-axis - left shoulder 2	2	C-screw M6-40	
		2	Hammer Nut M6	
		2	Rubber Stopper	
		2	C-screw M3-10	
11.6	Attach Middle Plate	1	Middle Plate	Fix the cable of the Z-endstop Sensor in the Middle Plate channel before fixing it.
		16	C-screw M4-25	
		4	C-screw M5-16	
		1	Z-endstop Sensor	
		2	C-screw M3-18	
12	Fix X-axis	1	Prepared X-axis	
		15	C-screw M4-25	
		1	Y-endstop Block	
		1	C-screw M4-30	
		2	Y-chain Top Holder	
		8	C-screw M4-30	
13	Prepare Z Ball Screw	1	Z Ball Screw	
		1	Z Screw Block	
		6	C-screw M4-16	
14.1	Prepare Z-axis - linear guides	1	Z Plate	Press the linear guides against the inner surface of the pockets while tightening to align.
		2	Z Linear Guides	

Step Number	Step Title	Parts list		Remarks
		Quantity	Part name	
		32	C-screw M3-14	
14.2	Prepare Z-axis - ball screw	1	Prepared Z Ball Screw	
		1	Z Bottom Bearing Holder	
		2	C-screw M3-15	
		1	Z Bottom Bearing	
14.3	Prepare Z-axis - top plate	1	Top Plate	
		2	Counter Sunk Screw M6-30	
		2	C-screw M6-20	
		4	Hammer Nut M6	
		1	Z Top Bearing Holder	
		2	C-screw M3-15	
		1	Z Ball Screw Lock Nut	
14.4	Prepare Z-axis - router holder	1	Router Plate	
		6	C-screw M5-20	
		1	Stop Bar	
		2	C-screw M3-16	
		1	C-screw M5-40	
		1	Standoff M5-20	
14.5	Prepare Z-axis - motor	1	Z-motor	Tighten the Z-motor Pulley first.
		4	Washer M5	Tighten the belts by pulling the motors and tighten then motors.
		4	Lock Nut M5	Tighten the Z-screw pulley.
		4	C-screw M5-20	
		1	Z-belt	
		1	Z-motor Pulley	
		1	Z-screw Pulley	
15	Fix Z-axis	1	Prepared Z-axis	Carefully insert the carriages in the linear guide.

Step Number	Step Title	Parts list		Remarks
		Quantity	Part name	
		8	C-screw M3-20	Be carefull to not let the carriage slide out of the linear guide
		4	C-screw M5-15	
		4	Carriage Z	
16	Fix the Router	1	Router	
		1	Router Air Pipe	
		1	C-screw M8-50	
		1	Top Wire holder	
		2	C-screw M3-30	
		2	Washer M3	
		2	Nut M3	
17	Attach Coolant System	1	Coolant System Holder	
		2	Counter Sunk Screw M3-10	
		2	C-screw M5-30	
		1	Coolant System	
		1	Coolant Tube	
		1	Coolant System Air Pipe	
18	Attach Top Cover	1	Top Cover	Pass the air and coolant pipes and cables throught the Wire Holder and Wire Pipe
		1	Wire Pipe	
		2	C-screw M3-10	
		2	C-screw M3-16	
		3	Cable Tie	
19	Attach X-chain Top Holder	1	X-chain Top Holder	
		1	Wire Pipe Holder	
		4	C-screw M3-25	
		2	Washer M3	
		1	X-endstop Sensor	
		2	C-screw M3-18	

Step Number	Step Title	Parts list		Remarks
		Quantity	Part name	
20	Fix the X-chain	1	X-chain	Pass through the chain ahh cables and pipes from the head, in addition to the cables of the X and Z endstop sensors.
		5	C-screw M4-10	
		5	Nut M4	
21	Fix X-motor	1	X-motor	Tighten the X-motor Pulley first.
		4	C-screw M5-20	Tighten the belt by pulling the motor and tighten then motor.
		4	Washer M5	Tighten the X-screw pulley.
		4	Lock Nut M5	
		1	X-motor Pulley	
		1	X-screw Pulley	
		1	X-belt	
22	Fix X and Z Motor Drivers	2	Motor Driver	
		4	C-screw M5-10	
		1	Pneumatic Connector 6-6	
		1	Coolant System Air Pipe Extension	
23	Wiring & Cable Management - X-axis	1	X-driver Logic Cable	Connect the cables of the X and Z motors to the respective drivers.
		1	Z-driver Logic Cable	Separate the cables that pass through the right and left shoulders (looking from the back of the machine). Right: XZ-drivers Logic Cables, X-endstop Cable, Z-endstop Cable. Left: all pipes, router cables and XZ-drivers Power Cables.
		1	XZ-drivers Power Cable	Fix the cables of the left shoulder to the X-chain Bottom Holder with cable ties.

Step Number	Step Title	Parts list		Remarks
		Quantity	Part name	
		6	Cable Tie	
24	Fix the Shoulder Cable Covers	2	Shoulder Cable Cover	
		16	Counter Sunk Screw M3-10	
25	Fix the Y-chains	2	Y-chain	Pass the cables through the chains before fixing it.
		4	C-screw M4-12	
		4	Washer M4	
		4	Lock Nut M4	
		4	C-screw M5-8	
26	Fix Y-axis Pulley	2	Y-motor Pulley	Tighten the motor pulleys first.
		2	Y-screw Pulley	Tighten the belts by pulling the motors and tighten then motors.
		2	Y-belt	Align the X-axis by keeping the same distance from the back of both shoulders.
				Tighten the X-screw Pulleys
27.1	Wiring - Back Plate 1	1	Y-drivers Power Jumper	
		1	Drivers Power Cable Inside	
		2	Wire Connector 3 Slots	
		1	YL Driver Logic Cable	
		1	YR Driver Logic Cable	
27.2	Wiring - Back Plate 2	1	Terminal Board	Insert the Emergency Button Cable inside the profile.
		1	Terminal Board Holder	
		3	C-screw M3-10	
		2	C-screw M3-18	
28	Prepare Separator Panel	1	Separator Panel	
		2	Valve	

Step Number	Step Title	Parts list		Remarks
		Quantity	Part name	
		1	Connecting Air Pipe 10mm	
		1	Connecting Air Pipe 30mm	
		1	Pneumatic Fit Connector T-shape	
		4	C-screw M3-10	
29	Fix the Bed	1	Prepared Separator Panel	
		3	C-screw M3-12	
		1	Bed	
		20	C-screw M5-16	
30	Wiring - Back Plate 3	1	Connecting Air Pipe 150mm	Pass the cable of the Tool Sensor through the hole of the Back Cover but don't fix the cover yet.
		1	Tool Sensor	
		1	Back Cover	
31	Fix X-pulleys Cover	1	X Right Cover	
		1	X Left Cover	
		8	C-screw M3-10	
32	Flx X Back Cover	1	X Back Cover	
		4	B-screw M4-12	
		4	Hammer Nut M5	
33	Fix Outer Side Cover	2	Outer Side Cover	
		8	B-screw M4-12	
		8	Hammer Nut M4	
34	Attach Back Cover	4	C-screw M5-16	
35	Fix Y-pulley Covers	1	Y-pulley Cover Right	
		1	Y-pulley Cover Left	
		8	C-screw M3-10	
36	Fix Tools Holder	1	Tools Holder	

Step Number	Step Title	Parts list		Remarks
		Quantity	Part name	
		4	Standoff M8-60	
		4	Hex Screw M8-90	
		2	C-screw M4-12	
37	Install Outer pipes	2	Connecting Air Pipe 120mm	
		1	Air Splitter	
		1	Air Pipe	
		1	Coolant Pipe	