

Assembly Instruction 3D-PEDT - related technical drawings

Nr.	Working Step	Tools
	Preparation	
1	Deburr 3D printed components, remove brim + support structures	Deburrer or knife, files, knives
2	Melting threaded inserts into the components (9) (12) (20) (25)	soldering iron + tip adapter (if available)
3	Glue the drilling template to the frame (10) and drill and deburr the holes	Drills deburrer
	Note: all screws must be fitted with washers	-
	Motor assembly	
	Note: designed for a shaft coupling with the outside dimensions of $d = 16$ mm and $l = 23$ mm. Other dimensions can be used as long as they fit into the syringe and the linear guide, that maybe requires a linear guide of a difference length and other distances of the syringe holders as well as changes to the design of the linear guide and the piston adapter.	
4	Adjust the linear guide glider (6) to the linear guide (7), this must move smoothly (rework glider if necessary)	Files, sandpaper
5	Mount the linear guide glider (6) on the shaft coupling (5)	allen key
6	Mount shaft coupling (5) on the lead screw (2)	allen key
7	Turn the lead screw (2) into the thread of the stepper motor (1)	-
8	Fit two hexagon nuts M3 in the designated recesses of the linear guide mount (11)	-
9	Insert the linear guide (7) into the linear guide holder (11) and clamp with two head cap screw M3 x 8	allen key
10	Grease the lead screw (2) the thread guide of the motor (1)	lubricant
11	Grease the linear guide glider (6) and thread it into the linear guide (7)	lubricant
12	Screw the linear guide mount (11) to the stepper motor (1) using four head cap screw M3 x 8	allen key
13	Mount the linear guide cover (8) on the linear guide (7)	-
	Upper syringe holder assembly	
14	Fit the hexagon head screw M5 x 40 (24) in the recess provided in upper syringe holder part 1 (29)	nut M5 spanner
15	Install pin 4 h6 x 24 (23) in upper syringe holder part 2 (21)	Hammer if necessary
16	Install upper syringe holder part 2 (21) with the pin (23) centred between part 1 (20) and part 3 (22)	Hammer if necessary

Nr.	Working Step	Tools
	Lower syringe holder assembly	
17	Fit the hexagon head screw M5 x 40 (24) in the recess provided in lower syringe holder part 1 (25)	-
18	Install pin 4 h6 x 24 (23) in lower Syringe Holder part 2 (26)	Hammer if necessary
19	Install lower syringe holder part 2 (26) with the pin (23) centred between part 1 (25) and part 3 (27)	Hammer if necessary
	Syringe holder assembly	
20	Mount the lower syringe holder group (25, 26, 27) to the frame (10) using two head cap screws M4 x 12 and one head cap screws M4 x 8	allen key
21	Mount the stepper motor mount (9) to the frame (10) using four head cap screws M4 x 8	allen key
22	Mount the lower syringe holder group (20, 21, 22) to the frame (10) using three head cap screws M4 x 12	allen key
23	To align the upper and lower syringe holder, install a syringe (17) and secure it with the quick-release knurled nuts (16). Tighten the screws of the upper and lower syringe holder firmly	allen key
24	If available, fit additional touch sensor mount (12), spacer (14) and cable mount (15). These components are specific to the “base machine” used and must be adapted accordingly.	allen key
	Piston assembly	
25	Mount the piston adapter (13) to the shaft coupling (4)	allen key
26	Mount the shaft coupling (4) to the lead screw (2) using two head cap screws M3 x 8	allen key
27	Place the rubber piston (18) on the piston adapter (13)	-
	Extruder assembly group	
28	Connect the motor assembly to the syringe holder assembly by mounting the stepper motor (1) on the stepper motor holder (9) with three head cap screws M4 x 16 and one M4 x 25. To centre the stepper motor, push the piston completely into the syringe before tightening the screws.	allen key
29	Connect the cable to control the motor and possibly the touch sensor	screwdriver