

STANDARD OPERATING PROCEDURE, PRINTER

For training and beginner operators

Last update: 08/06-2022

System startup

1	Flip the power switch on the side of the E-box to turn on the printer	
2	After the printer has been turned on, open Soft-NA, it should open automatically	
3	Turn the key in the operator panel/yellow controller	
4	Hold it until the light turns yellow/red	
5	Press the green button on the controller and make sure the lamp is blinking green/yellow	
6	If the light is not green/yellow but red/yellow, follow steps 7-9. If the light is blinking green/yellow go to step 10	
7	Make sure that all emergency stops are not pushed in, on newer versions of Soft-NA it can be seen from the screen	
8	If an emergency button was pushed, go into the troubleshooter and error reset	
9	Hold the green button for a few seconds, release and ensure that the light is blinking green/yellow	
10	In Soft-NA, click "Power ON"	
11	In Soft-NA, click "Plc mode" to go into Duet mode	
12	Check that all axis is green, this means the printer is ready to go	
13	All axes should be green, except U if it is not connected	

14	If the U is connected and it is still red, turn the machine off, and unplug the U. After unplugging the U, blow into both connections, there might be some dust in there which disrupts the connection	
15	Connect to the printer either via Wi-fi or ethernet and go to 192.168.1.2 in your browser to use duet controls	

Operation

1	Before moving, make sure to get machine position. Move the printer to the desired position for your job and create a Work coordinate system	
2	Create the work coordinate, in a different coordinate system than 1, by setting the X, Y, Z and U to 0, remember to also master Z and U in the Soft-NA software	
3	Upload your G-code to the printer via "Upload job" in the bottom of the Duet Interface	
4	Save the new coordinate system to SD card, via the macro "Save WCS to SD Card"	
5	It will ask you to start the job, which will immediately start the print for a dry run	
6	After doing 1-2 layers of the dry run, you can now put slurry into the pump and start the real run	
7	Pause, and then cancel the print	
8	Set the material level in the hopper to approximately 62 on the lower and 66 on the higher end, this is recommended values, some other values might work for you, however don't go higher than 70	
9	Move the printhead above a place where you can dump material	

10	Extrude until you have buildable material coming through the nozzle	
11	After getting good material, press "Print again" and the machine will start the "Wet run"	
12	When printing remember monitor the nozzle, both rotation, extrusion and speed	

Shutdown

1	Pause the print	
2	Move the printer to a place where you can dump material, or alternatively put a bucket underneath	
3	Extrude the rest of the material in the hopper, make sure you don't keep pumping new material through, remember to switch the pump to local, so it stops pumping	
4	After the hopper is empty, move it into the printhead stand	
5	When the hopper is secured in the hopper stand turn off the machine and unplug the U-cable	
6	After unplugging the U-cable, turn the machine back on	
7	Disconnect the hopper into the printhead stand	
8	Move the printer up slowly, so it is free to access the extruder screw	
9	Disconnect the extruder screw, and take the printhead stand with the hopper out from the print area for cleaning	
10	Remember to clean underneath the printhead, where the distance sensor is located.	
11	Also, clean the inlet for the dosing system	
12	Disassemble the hopper, and clean every part thoroughly, use 20 minutes extra now, and save 2 hours tomorrow	

12	Turn off the printer again	
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