

Printing Process Guide FUNMAT PRO 310 NEO

	PLA	PLA-HS	TPU95 A	PETG	PET-CF	PET-GF	ABS-HS	ABS+	ABS-HT	ABS-GF	ABS-ESD	ASA	PC	PC-FR	PC-FR-HT	PC/ABS	PC-PBT	PA6/66	PA6-CF	PA12-CF	PA-CF-LM	PPA-CF	PPA-GF	PPS	PPS-GF
Nozzle temp. (°C)	230	230	205	240	300	300	255	280	280	260	260	250	270	270	300	260	255	250	260	290	280	310	310	310	320
Build plate temp. (°C)	55	55	55	65	60	60	100	90	110	100	110	90	100	100	120	100	90	90	75	100	100	90	90	90	100
Chamber temp. (°C)	0	0	0	60	60	60	80	90	80	80	80	90	100	100	100	100	90	90	70	60	60	70	70	70	80
Build plate	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI
Filament dry condition	50°C/8h	50°C/8h	80°C/12h	80°C/8h	100°C/8h	100°C/8h	80°C/8h	80°C/8h	80°C/8h	80°C/8h	80°C/8h	80°C/8h	80°C/8h	80°C/8h	80°C/8h	80°C/8h	80°C/8h	80°C/12h	80°C/12h	100°C/12h	100°C/12h	100°C/12h	100°C/12h	100°C/12h	100°C/12h
Support Materials	SP3030/ PVA	SP3030/ PVA	SP3030/ PVA	HIPS	HIPS	HIPS	HIPS	SP3030/ HIPS	HIPS	HIPS	HIPS	HIPS	HIPS	HIPS	HIPS	HIPS	HIPS	SP3030/ PVA	SP3030/ PVA	SP3052	SP3054	SP5010	SP5010	SP5010	SP5010
	HIPS	PVA	SP3030	SP3052	SP3054	SP5010																			
Nozzle temp. (°C)	250	220	250	260	280	280																			
Build plate temp. (°C)	80	60	50	90	90	90																			
Chamber temp. (°C)	80	0	50	70	70	70																			
Build plate	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI	PC / PEI																			
Filament dry condition	50°C/8h	80°C/12h	80°C/12h	80°C/8h	80°C/8h	100°C/12h																			
Support Materials	/	/	/	/	/	/																			
Layer thickness (mm)	0.25~0.75*nozzle diameter (0.1~0.3mm layer height for 0.4mm nozzle, 0.15~0.2mm is recommended).																								
Build plate leveling	Build plate leveling is very important. After completing leveling, the user may proceed with printing. There are two methods of bed leveling: Manual Leveling and Auto Leveling.																								
Build plate adhesion type	Raft is recommended to get better first layer adhesion. PC and PEI build plate can be both used for printing, and PVP glue is recommended for PEI build plate.																								
Print part remove	Once your 3D print is completed, it is recommended to remove the print after cooling.																								
Nozzle separately use	PET-CF/GF,ABS-GF,PA6-CF,PA12-CF、PPA-CF/GF、PPS-GF、SP3052 and SP5010 are recommended to use INTAMSYS FUNMAT PRO 310 NEO special hardened steel nozzle for printing. For other materials, please use the original INTAMSYS FUNMAT PRO 310 NEO nozzle for printing.																								
Filament care	A convection or vacuum oven should be used to dry filaments before printing. If the filament is not sufficiently dry, the extrudate will be foamy with bubbles. Please dry the filaments according to the recommended temperature and time and avoid drying the filaments for too long. Thread the filament into the small holes in the side of the spool after removing from the printer to avoid twisting. And ensure the filament is not twisted before printing. It is strongly recommended to use INTAMSYS special drying bin and use molecular sieve desiccant to assist drying to ensure that the filament is dry during the printing.																								
Support material solution	Please refer to Annex 1 for the supporting material solution. Please refer to Annex 2 for instructions on the use of water-soluble support.																								

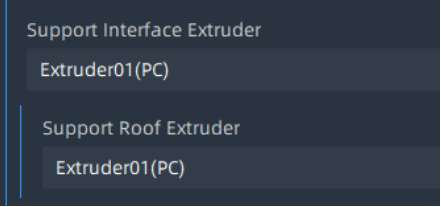
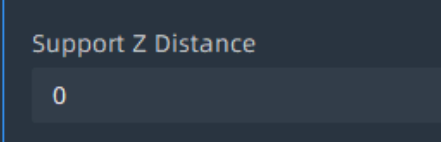
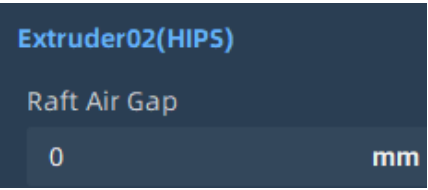
	When two support materials are available, the first material is recommended.
Others	Please wear high temperature protective gloves when taking out the printing plate from high temperature chamber. While both of the support materials in table can be supported for the main material, the first one is preferentially recommended. All printing process instructions above are for use on FUNMAT PRO 310 NEO printers using INTAMSYS filament only.

Note: The build plate temperature and chamber temperature are laboratory reference values. Actual process parameters shall be determined based on the specific printing application scenario.

Annex 1

Support Material Solution

1. Support & Raft Settings in Slicing Software

	Single-nozzle print	Dual-nozzle print
Support Interface Extruder 	— —	Support material
Support Z Distance 	0.1mm/one layer height	0
Raft Air Gap 	0~Initial Layer Height	0

The Support Pattern “Zig Zag” is recommended because it is more easily to remove.

2. Support Material Treatment (after printing)

Support Material	Type	For model material	Treatment process and others
SP3030	Water soluble support	TPU95A,PLA,ABS+,PA6/66,PA6-CF	Immerse the print part in tap water until all support dissolved. It is highly recommended to store the filament in the resealable bag because its strong hygroscopicity.
HIPS	Breakaway support	PETG,PET-CF/GF,ABS-HS, ABS-GF, ASA,PC, PC-FR,PC/ABS,PC-PBT	Manually breakaway.
SP3052	Breakaway support	PA12-CF	Manually breakaway.
SP3054	Breakaway support	PA-CF-LM	Manually breakaway.
SP5010	Breakaway support	PPA-CF/GF,PPS, PPS-GF	Manually breakaway.

Notice: Always wear safety glasses and safety gloves when removing support material by hand and operating chemical solvent;

Inaccurate “Z calibration” and “XY calibration” may cause the two materials to embed each other or poor bonding, which results in model printing defects or even printing failures, please check it and redo the calibrations of the printer.

Annex 2

Water Soluble Support Print Guide

1. Filament Drying

Water soluble support materials is vital to keep the filaments away from moisture before and during printing.

Prior to printing, we recommend that the filament should be fully dried in accordance with the recommended drying method before use to prevent foamy extrudate. An air circulating oven can be used to dry filaments before printing.

Please ensure several bags of desiccant are placed inside the filament chamber when printing.

2. Separation between model and support

The printing part should be kept in water (35-40°C warm water would be better) for 4-10 hours, then the model and support could be easily separated.