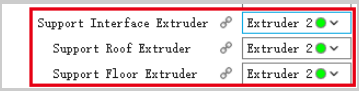
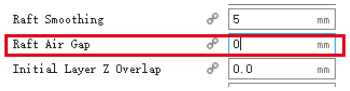
Printing Process Guide For FUNMAT PRO 610HT

	PLA	ABS	ABS+	ASA	PC	PC/ABS	PA6/66	PA6-CF	PA12-CF	PPA-CF	PPA-GF	PET-CF	PET-GF	PPS	PEEK	PEEK-CF	PEEK-GF	PEKK	PEI 1010	PEI 9085	PPSU	PVA	HIPS	SP3030	SP3050	SP5000	SP5040	SP5080	SP5010
Nozzle temp. (℃)	220	270	250	255	265	260	265	260	280	310	310	320	320	330	420	420	420	380	375	370	390	220	250	230	280	300	360	400	280
Chamber Temp (℃)	40	90	90	90	100	90	40	50	60	80	80	80	80	90	130	130	130	130	210	170	200	40	90	90	40	130	180	200	80
Build plate	PC sheet	PC sheet	PC sheet	PC sheet	PC sheet	PC sheet	PC sheet	PC sheet	PC sheet	PC sheet	PC sheet	PC sheet	PC sheet	PC sheet	PC sheet	PC sheet	PC sheet	PC sheet	Coated steel sheet	Coated steel sheet	Coated steel sheet	PC sheet	PC sheet	PC sheet	PC sheet	PC sheet	Coated steel sheet	Coated steel sheet	PC sheet
Filament dry condition	50℃/8h	80℃ /8h	80℃/8h	80℃ /8h	80℃ /8h	80℃/8h	80℃/12h	80℃/12h	100℃ /12h	100℃ /12h	100℃ /12h	100℃ /8h	100℃ /8h	100℃ /12h	100℃ /12h	100℃ /12h	100℃ /12h	100℃ /12h	100℃ /12h	100℃ /12h	100℃ /12h	80℃ /12h	50℃ /8h	80℃ /12h	100℃ /8h	80℃ /12h	100℃ /12h	100℃ /12h	100℃ /12h
Support Materials	SP3030	HIPS	SP3030 HIPS	HIPS	HIPS	HIPS	SP3030	SP3030 PVA	SP3050	SP5010	SP5010	HIPS	HIPS	SP5000 HIPS	SP5080	SP5080	SP5080	SP5080	SP5080	SP5040	SP5080	--	--	--	--	--	--	--	--
Layer thickness (mm)	0.25~0.75*nozzle diameter (0.1~0.3mm layer height for 0.4mm nozzle, 015~0.2mm is recommended).																												
Build plate adhesion type	Raft has to be used to get better first layer adhesion. When using PVA as raft, please apply some PVP glue on the PC sheet to get better adhesion.																												
Nozzle	Use separately nozzle for high and normal temp material. Because residual high material cannot melt when printing normal materials, which may clog the nozzle. Please use the original INTAMSYS FUNMAT PRO 610HT nozzle set to print.																												
Calibration and leveling	Use PC sheet as build plate when doing Z calibrate, build plate leveling and XY calibrate. PVP glue is recommended to apply when the materials, like HIPS and PVA, cannot stick well on the PC sheet when printing XY calibration model. Most of the materials can stick well on the sheet without glue.																												
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 that filaments should be stored in a sealed container and with desiccant.																												
Support material solution	Please refer to Annex 1. When there are two support materials to choose from, the first wire is recommended to be preferred.																												
PEEK Print Part Annealing Process Guide	Please refer to Annex 2.																												
Others	Wear gloves when moving the build plate with high temperature. All guides above are only applicable for 3D printing FUNMAT PRO 610HT with INTAMSYS filaments.																												

Annex 1

Support Material Solution

1. Support & Raft Settings In Slicing Software

	Single-nozzle print	Dual-nozzle print
Support Interface Extruder 	——	Support material
Raft Air Gap 	0~Initial Layer Height	0

2. Support Material Treatment

Support Material	Type	For model material	Treatment process and others*
PVA	Water soluble support	PA6-CF	Manually remove most of the support, then immerse the print part in tap water until all support dissolved. Warm water is helpful to increase dissolving speed. It is highly recommended to store the filament in the resealable bag because of its strong hygroscopicity.
HIPS	Breakaway support	ABS, ABS+, ASA, PC, PC/ABS, PPS, PET-CF, PET-GF	Manually breakaway.
SP3030	Water soluble support	ABS+, PLA, PA6/66, PA6-CF	Manually remove most of the support, then immerse the print part in tap water until all support dissolved. Warm water is helpful to increase dissolving speed. It is highly recommended to store the filament in the resealable bag because of its strong hygroscopicity.
SP3050	Breakaway support	PA12-CF	Manually breakaway.
SP5000	Breakaway support	PEEK, PEEK-CF, PEEK-GF, PPS, PEKK	Manually remove most of the support, then immerse the print part in Ethyl Acetate Solvent for more than 24h. After that the support material will become soften. Then manually remove the soften support.
SP5040	Breakaway support	PEI 9085	Manually breakaway.
SP5080	Breakaway support	PEI 1010, PPSU	Manually breakaway.
SP5010	Breakaway support	PPA-CF, PPA-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

PEEK Print Part Annealing Process Guide

PEEK/PEEK-CF/PEEK-GF printed part can be annealed to get better mechanical and thermal properties. Please follow the procedure below:

(1) Immerse the print completely in gypsum slurry and place it in the oven after solidifying. Set the oven temperature (PEEK/PEEK-CF/PEEK-GF/150℃) and hold for 1 hour;

(2) Increase the temperature (PEEK/PEEK-CF/PEEK-GF/200℃) and leave it for 2 hours;

(3) Lower the temperature (PEEK/PEEK-CF/PEEK-GF/150℃) and leave it for 30 minutes;

(4) Turn off the oven and leave it to cool down to room temperature before removing the print.

Material Change Procedure — Always Use the Higher Loading Temperature

When switching to a new material, first compare the loading/extrusion temperature of the previous material with the new material. Always perform the loading/unloading procedure using the higher temperature of the two materials.

This ensures complete melting and purging of the previous material before the new filament is introduced, preventing nozzle clogs caused by residual material solidifying at a temperature that is too low.

Example:

Previous material: PC (loading temperature: 265℃)

New material: PLA (loading temperature: 220℃)

Action: Run the material change using the PC loading program (265℃) to fully purge the nozzle. Once the filament change is complete and the new PLA material is flowing cleanly, then adjust the temperature down to the PLA printing profile.