



Recommendations for printing with PEEK material on the 3DGence INDUSTRY F340 printer

3DGence INDUSTRY F340 PEEK printing process has been optimized for amorphous phase of the material. Keeping the phase under control throughout the process assures lower internal stress, better dimensional accuracy and process stability even on large parts. Semicrystalline PEEK is characterized by increased hardness and rigidity while a decrease in elasticity is observed. PEEK, in its amorphous phase, is transparent brown with a glassy sheen, while semicrystalline is beige, opaque and has a matte in finish.

PEEK should be warmed up each time before using by placing it at 75 °C for about 24 hours. You can use the 3DGence INDUSTRY F340 printer working chamber or a dedicated heat-drying dryer for this purpose. Even a small amount of moisture in the material will adversely affect the mechanical parameters and the quality of the model – air bubbles will appear on the walls.

It should be taken into account in the design process that the minimum cross-section in the model should not be less than 25 mm². Fig. 2 shows an example of an element which will not maintain its quality at the place marked with arrows. The minimum thickness of the printed wall without losing its strength is 2 mm. It is possible to print thinner walls, but their mechanical strength will be significantly reduced.

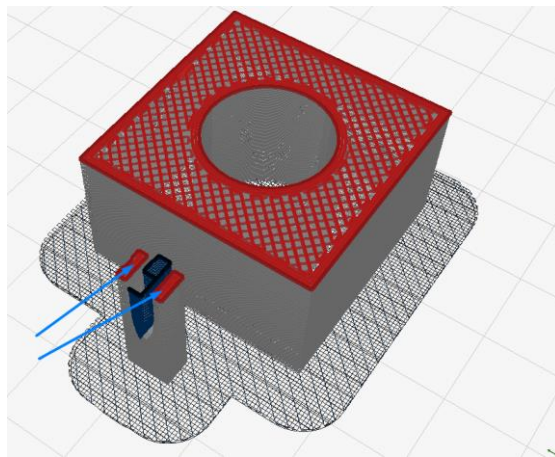


Fig. 1 Example of a model that will not maintain the right quality



PEEK + dedicated breakaway material	PEEK + soluble material ESM-10
Before starting the printing process	
<ul style="list-style-type: none">• Anneal the PEEK material at a temperature of 75 °C for approx. 24 hours• Apply minimum 2 layers of Dimafix in a stick to the table• Set the temperature in the filament chamber to 60 °C.• It is advantageous to perform automatic offset calibration in the Z-axis by selecting: <i>Menu</i> → <i>Calibration</i> → <i>Printing module</i> → <i>Measure T1 Offset</i>	<ul style="list-style-type: none">• Anneal the PEEK material at a temperature of 75 °C for approx. 24 hours• Apply minimum 4 layers of Dimafix in a stick to the table• Set the temperature in the filament chamber to 60 °C.• It is advantageous to perform automatic offset calibration in the Z-axis by selecting: <i>Menu</i> → <i>Calibration</i> → <i>Printing module</i> → <i>Measure T1 Offset</i>
After the printing process is completed	
<ul style="list-style-type: none">• Wait for the machine to cool down completely and then remove the model from the table.• Store the material in a annealed place, e.g. in the filament chamber of the INDUSTRY F340 printer (temperature 60 °C). Another solution is to pack the material under vacuum or in a sealed container with a dehydrator.• After completing the printout and during the module replacement, it is recommended to check visually that there is no residue of the previous material in the supply system. If any residual material remains, remove it manually using a different material or with compressed air.	<ul style="list-style-type: none">• Wait for the machine to cool down completely and then remove the model from the table.• Store the material in a annealed place, e.g. in the filament chamber of the INDUSTRY F340 printer (temperature 60 °C). Another solution is to pack the material under vacuum or in a sealed container with a dehydrator.• After completing the printout and during the module replacement, it is recommended to check visually that there is no residue of the previous material in the supply system. If any residual material remains, remove it manually using a different material or with compressed air.