3D Printing Basics

Last Modified on 05/11/2024 9:25 am CET

Author: Max Bensryd

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General Information

To order a print. Use the **<u>3D-print Queue Folders</u>** in teams and follow the instructions later in this article.

The X7 & Onyx Pro utilizes the CFR (Continuous Fiber Reinforcement) 3D-printing technique. There is two 3D-printers available in the Swedish office and are located in the printer room on the 5th floor.



Markforged Onyx Pro



Markforged X7

Build Volume

The dimensions you can print is at maximum:

- X7:
 - 1. Base plate: 330 mm x 270 mm
 - 2. Height: 200 mm
- Onyx Pro:
 - 1. Base plate: 320 mm x 132 mm
 - 2. Height: 154 mm

Layer thickness

The printer can print in layers of:

- 50 µm (Only for the X7)
- 100 µm
- 150 µm
- 200 µm
- 250 µm (Turbo)

How to empty a print job

• See the Markforged support guide here: <u>Safely Remove Printed Parts</u>

Available Build Materials

Onyx[®] - Nylon composite with micro carbon fiber. Tough, expensive & good surfaces.

- Color: Black
- Tensile Mod: 2400 MPa
- Flex Mod: 3000 MPa
- Yield: 40 MPa



PLA - Polylactic Acid. Weaker & cheaper.

- Color: White
- Tensile Mod: 2300 MPa
- Flex Mod: 2300 MPa
- Yield: 31 MPa



TPU 95A - Thermoplastic polyurethane. Rubber-like, impact absorbent & flexible.

- Color: Black
- Tensile Mod: 13-98 MPa (strain dependent)
- Flex Mod: 90 MPa
- Shore Hardness: 95 A



Available Reinforcing Materials (layers with continuous fibers)

• Carbon Fiber (only with Onyx[®])

How to order a 3D-print job

- Find the queue folders in teams (or here: <u>3D-print Queue Folders</u>).
- Add your .STL-files to the corresponding folder.
- Add your order in the excel with eventual demands (<u>Print Queue Excel</u>).
- Send a message informing all the users of the splice software:
 - 1. Benjamin
 - 2. Bo
 - 3. Magnus
 - 4. Max

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The Print Queue Excel comes with columns for relevant settings. If your print requires it, you can demand special settings to be used instead of the default ones. All of them have explanations included in the pop-up notes:

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3D-print name	Quantity	Designer	Date added	Deadline	Priority	Materia	R Onyx - Nylon co	mposite with ca	rbon fibre	. Tough,	Wall layers	Other comment	Exporter	Status	Time to print
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To see "Advanced tips & tricks" check out this **article**.