



# MATERIALS FOR 3D PRINTING

## **NYLON**



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# PA12 – PA2200

## White nylon

PA12 is the most widely used material for 3D printing with Selective Laser Sintering, as you can print fully functional parts with good mechanical and thermal properties. It is possible provide nylon with a 3S surface treatment. This significantly reduces moisture absorption and a smoother surface is achieved. 3S surface treated nylon is approved as food contact material (FCM)

We print with Selective Laser Sintering (SLS). The technology prints in powder and uses a laser to sinter the powder layers together. 3D printing with SLS offers a great deal of design freedom, as the parts do not need support material.

The technology can print parts that meet ISO 2768-m 1 - however, the tolerances depend a lot on the geometry of the part.

MATERIAL PROPERTIES (STANDARD)		PA12
TENSILE STRENGTH [Rm]		48 MPa
YOUNG'S MODULUS [E]		1700 MPa
YIELD STRENGTH [Rp0,2]		44 MPa
ELONGATION AT BREAK [A]		22 %
ELONGATION AT YIELD		14 %
VICKERS HARDNESS [Shore D]		80,6
PART DENSITY		0,95 g/cm3

SURFACE TEXTURE	Raw	3S surface sealing
Average roughness [Ra]	7,3	1,3

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#### Technology:

- Selective Laser Sintering

#### Printers:

- EOS - P396
- 3D Systems - ProX 6100

#### Build volume:

- EOS: 340 x 340 x 600 mm
- 3D: 381 x 330 x 460 mm

#### Layer thickness:

- 0,10 - 0,12 mm

#### Possible post-processing:

- Deburring
- Media blasting
- Colouring
- Lacquering
- 3S surface sealing

#### Design features:

- Minimum feature size 0,8 mm
- Minimum channel size Ø1,5 mm
- Minimum wall thickness 0,7 mm
- Support not necessary
- Hole for emptying powder Ø5 mm

#### Design guides:

- Minimize the volume of the part as much as possible
- Avoid large changes in the cross-sectional area of the part
- Use camphors and roundings - they are "free"
- Consider the print orientation in your design



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