

# PA12 Industrial

## TDS for Lisa X

Material's Technical Data Sheet

A high resistance nylon 12 with very good dimensional accuracy of prints. Perfect for functional prototyping, jigs and fixtures and end-use parts.

Compatible with:

LISA

NILS  
480



### FEATURES

- very good dimensional accuracy
- biocompatible<sup>1</sup>
- excellent mechanical properties
- high chemical resistance

### APPLICATIONS

- final parts
- functional prototypes
- jigs and fixtures
- parts with very good dimensioning



#### General properties

General properties			Test method
Material Type	Nylon 12	-	
Nitrogen needed	No	-	
Colour	Grey mat	-	internal
Refresh ratio <sup>2</sup>	30	%	internal
Bulk density	505	kg/m <sup>3</sup>	PN-EN ISO 60:2011
Printout density	0.99	g/cm <sup>3</sup>	PN-EN ISO 845:2010
Printout water absorption	0.22	%	PN-EN ISO 62:2008
Mean particle size D50	62	µm	ISO 13320

**Mechanical properties**

			<b>Test method</b>
Tensile Strength (X direction)	47.61	MPa	PN-EN ISO 527-1:2012
Tensile Strength (Y direction)	48.66	MPa	PN-EN ISO 527-1:2012
Tensile Modulus (X direction)	2001	MPa	PN-EN ISO 527-1:2012
Tensile Modulus (Y direction)	1983	MPa	PN-EN ISO 527-1:2012
Elongation at Break (X direction)	5.86	%	PN-EN ISO 527-1:2012
Elongation at Break (Y direction)	5.78	%	PN-EN ISO 527-1:2012
Flexural Strength (X direction)	62.31	MPa	PN-EN ISO 178:2019
Flexural Strength (Y direction)	57.55	MPa	PN-EN ISO 178:2019
Flexural Modulus (X direction)	1791	MPa	PN-EN ISO 178:2019
Flexural Modulus (Y direction)	1768	MPa	PN-EN ISO 178:2019
Impact strength X (Charpy - unnotched)	15.23	kJ/m <sup>2</sup>	PN-EN ISO 179-1:2010
Impact strength Y (Charpy - unnotched)	22.92	kJ/m <sup>2</sup>	PN-EN ISO 179-1:2010
Shore Hardness in D scale	75	-	PN-EN ISO 868:2005

**Thermal properties**

			<b>Test method</b>
Melting temperature	184	°C	PN-EN ISO 11357-3:2018
HDT A (X direction)	51	°C	PN-EN ISO 75-2:2013-06
HDT A (Y direction)	53	°C	PN-EN ISO 75-2:2013-06
HDT B (X direction)	159	°C	PN-EN ISO 75-2:2013-06
HDT B (Y direction)	161	°C	PN-EN ISO 75-2:2013-06
Softening point (Vicat A50)	165	°C	PN-EN ISO 306:2014-02

**Biocompatibility Information<sup>3</sup>**

<b>Test method</b>	<b>Description</b>
ISO 10993-5	non-cytotoxic
ISO 10993-10	not a sensitizer
ISO 10993-23	no irritant

1. Tested for nonirritant, non-cytotoxicity, and not a sensitizer. When producing the 3D prints, it is the manufacturer's responsibility to confirm the specifications for the final use.
2. Refresh ratio is the amount of refreshing powder that is required to be mixed after the printing with unsintered material.
3. Tests were carried out in accordance with ISO 10993-1:2018. When producing the 3D prints, it is the manufacturer's responsibility to confirm the specifications for the final use. Material properties may vary based on the design and manufacturing practices.

Information provided within this document are average values for reference and comparison only. All tests were performed with print samples from Lisa X printed from the fresh powder. Parameters presented in this specification are subject to change without notice. Final part properties may vary based on printed part design, print orientation, and material handling. All mechanical tests were carried out on samples conditioned to ISO standards at (23 ± 2)°C and (50 ± 5)% r. h.