ELASTO 85

This is our softest material. This polymer is a 85 Shore A TPU, with excellent resistance to elongation.

It is indispensable wherever you need good impact resistance, a "soft" hand or simply excellent elasticity.

The adhesion between the layers is very good and adheres equally well to other polymers.

Thermal resistance is similar to ABS, as well as chemical resistance.

SPFU is required to correctly print ELASTO 85.

Suggested use

Automotive	
Aerospace	
Oil & Gas	

Compatibilities

Support compatibility	SSU14 SSU00
	SSU09
Material compatibility	ABS
	ASA
	Nylon +, Glass +, Carbon +
	PETG

Easy profiles suggested

Layer	Ø 0.3 mm	Ø 0.4 mm	Ø 0.6mm	Ø 0.8 mm
0.10				
0.15		**		
0.20		**	*	
0.25		**		
0.30		*	**	*
0.40			**	**
0.50				**

** : Recommended
* : Discrete quality

Before printing

Drying	Dying before and during the job. 55 °C is recommended
Cleaning	It's suggested to clean the bed with IPA before print
Print directly on Veltra bed	Not recommended
Extruder	NORMAL
Nozzle	Standard
SPFU	Required

General advice

If you need to REDUCE the INFILL, please DOUBLE the SKIN THICKNESS, in order to avoid protruding of infill scheme. This procedure can be done only in advanced mode.

An increase in leather thickness or high filling density can cause deformations of the piece during the printing phase.

Too thin layer causes collapsing of oblique walls.

In case of multi-material printing in combination with ABS/ASA, in SSI it is possible to choose SSU00 as support material. However, Elasto 85 has a low adhesion on SSU00. It is advised orientate object in the way which only ABS/ASA touches the support.

*Physical properties[1]**

Propriety	Symbol	Standard	Value
Density	ρ	ISO 1183	1.19 g/cm^3
Water absorption	w_w	ASTM D570	0.22 %

*Thermal properties**

Propriety	Symbol	Standard	Value
Melting flow index	M. F. I.	ISO 11357	N/A
Glass transition temperature	T_g	ISO 11357	-35 °C
Melting point	DSC	ISO 11357	216 °C
Heat Deflection Temperature	HDT (@ 10,75 psi/0,07 MPa)	ASTM D648	60 °C
Heat Deflection Temperature	HDT (@ 10,75 psi/0,45 MPa)	ASTM D648	44
Flammability		UL94	N/A

*Electrical properties**

Propriety	Symbol	Standard	Value
Surface resistivity	σ_e	N/A	N/A
Electric strength	E_B	N/A	N/A

* values provided by polymer supplier

Mechanical properties

Based on layer-by-layer deposition, additively manufactured parts, especially with the FDM technique, present a not negligible anisotropy on mechanical properties.

The user must think about the correct displacement of the part in the machine for maximize its mechanical properties.

For this reason, we report the mechanical properties of our specimens considering the three main orientations, by plane x-y (flat), by plane y-z (on edge), and by plane z-x (upright). All specimens are made with the same printing conditions:

- Infill: 100%
- Nozzle: 0,4 mm
- Layer thickness: 0.2 mm
- Raster angle: 45 °

For more information about the test and specimens' conditions, we suggest checking the ISO references that are reported in the following tables.

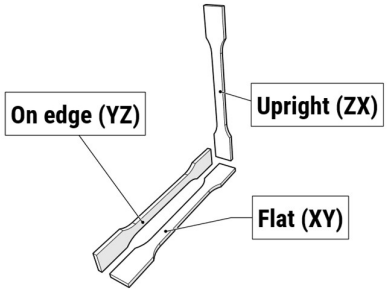


Figure 1: specimen displacement to determine tensile properties (ref. ISO 527-2)

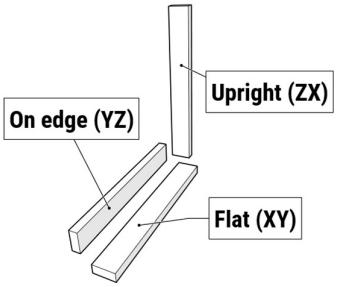
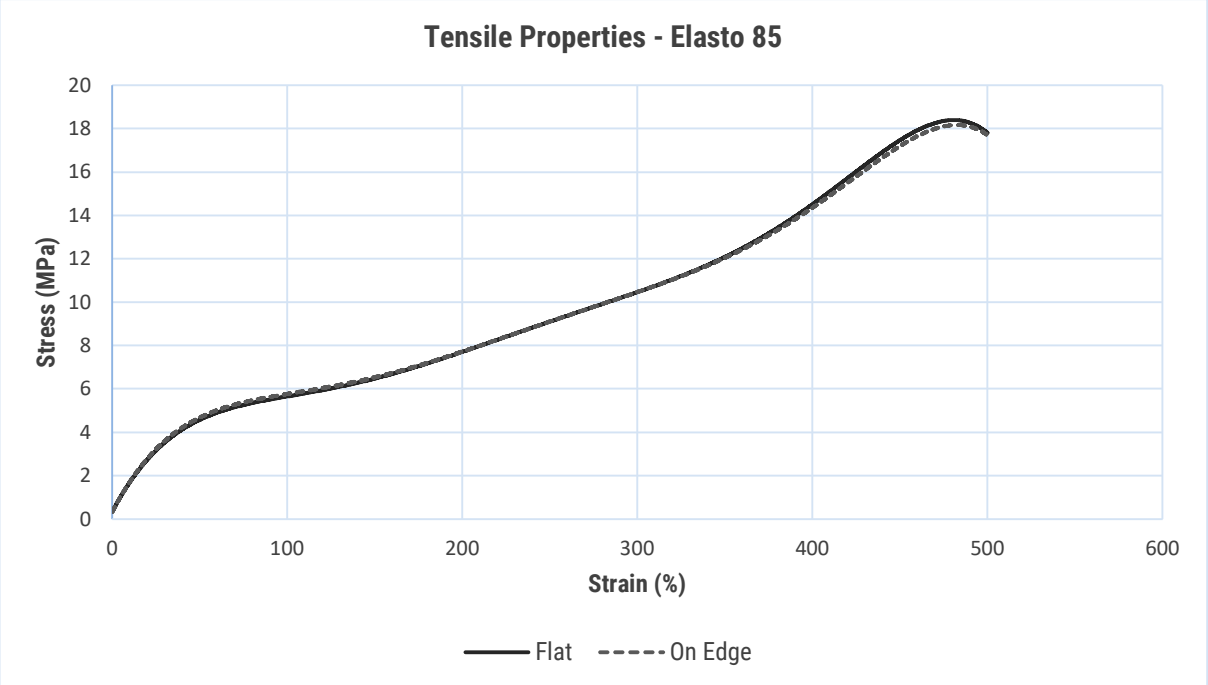


Figure 2: specimen displacement to determine flexural and impact properties (ref. ISO 178 and 179-1)

Tensile properties

Propriety	Symbol	Standard	Specimens build direction	Value
Tensile modulus	E_t	ISO 527-2	Flat	18 MPa
			On edge	19 MPa
			Upright	N/A
Yield stress	σ_y		Flat	N/A
			On Edge	N/A
			Upright	N/A
Yield strain	ε_y		Flat	N/A
			On Edge	N/A
			Upright	N/A
Strength at break	σ_b		Flat	21 MPa
			On Edge	20 MPa
			Upright	N/A
Strain at break	ε_b		Flat	493 %
			On Edge	493 %
			Upright	N/A



Flexural properties

Propriety	Symbol	Standard	Specimens build direction	Value
Flexural modulus	E_f	ISO 178	Flat	N/A
			On edge	N/A
			Upright	N/A
Flexural strength	σ_{fC}		Flat	N/A
			On Edge	N/A
			Upright[2]	N/A

Impact properties

Propriety	Symbol	Standard	Specimens build direction	Value
Charpy notched impact strength	a_{cn}	ISO 179	Flat	4.2 KJ/m^2
			On edge	N/A
			Upright	N/A
Type of failure	ToF		Flat	N/A
			On Edge	N/A
			Upright	N/A

[2] Breaking may occurs at this bending percentage

The fine print

The information and values listed into this document are provided in good faith, based on specimens printed with 3ntr machines according to the latest version of SSI print parameters valid at the date of issuance.

3ntr provides you with this information for your guidance to select the correct polymer and setup but user is responsible for determining that 3ntr material is safe, technically correct and legal for the selected application.

The values listed in this document are not meant for design specification or quality control guidelines: is it user responsibility to design parts with appropriate safety margins to comply with any material variation due part design, production, test conditions, use conditions.

The user has also the responsibility to assess the suitability of the product to the selected use, built with part(s) made with 3ntr materials and/or technologies.

3ntr is not responsible for any warranty about suitability, merchantability or fitness of any part manufactured with 3ntr materials and/or technologies.

3ntr is not responsible for any patent infringement from use of any part printed with 3ntr materials and/or technologies.

The user is responsible for proper use and disposal or recycling of the material(s) listed here according to local laws and regulations.