MATERIALS COMPARISON – DESIGN GUIDELINES

Polymers

sculpteo

Column	Description
LAYER THICKNESS	Print resolution.
MINIMUM WALL THICKNESS	Minimum recommended wall size to ensure there are no errors during printing
ACCURACY	Expected degree of dimensional accuracy.
MAX SIZE (mm)	Maximum dimensions possible to respect an item
STEMMED ELEMENTS	Internal elements connected by at least two sides (with support) and by less than two sides (without support)
MINIMUM VISIBLE DETAIL	Minimum dimension to ensure detail visibility.
ENGRAVING	Graphic elements hollowed out on the surface of the model.
EMBOSSING	Graphic elements raised above the surface of the model.
ENLARGEMENT RATIO	Minimum ratio to be observed between the diameter of a hole and the thickness of the wall of the model.
INTERLOCKING & ENCLOSING PARTS	Possibility to print parts that will articulate between each other & Possibility to print a model with volume inclusions.
ASSEMBLY	Possibility of assembling parts while leaving a minimum space between them.
HOLLOWING	Optimization of the weight and price of a model by removing internal material.

SLS Technology

MATERIAL	LAYER THICKNESS	MINIMUM WALL THICKNESS	ACCURACY	MAX SIZE (mm)	STEMMED ELEMENTS	MINIMUM VISIBLE DETAIL	ENGRAVING	EMBOSSING	ENLARGEMENT RATIO	INTERLOCKING & ENCLOSING PARTS	ASSEMBLY	HOLLOWING
PA12	100 – 120 µm	Flexible: 0.8mm Rigid: 2mm	± 0.3% (min of ± 0.3mm)	Raw: 675 x 366 x 545 mm	0.8mm (supported) 1mm (unsupported)	0.3mm	0.5mm	0.4mm	1/1	Yes & Yes	Yes (min space 0.5 mm)	Yes
PA12 Grey GF	100 µm	Flexible: 1.5mm Rigid: 2mm	± 0.45% (min of ± 0.45mm)	300 x 300 x 590 mm	-	1mm	-	-	1/1	Yes & Yes	Yes (min space 0.5 mm)	Yes
PA2210 FR	100 – 120 µm	Flexible: 0.8mm Rigid: 2mm	± 0.3% (min of ± 0.3mm)	310 x 310 x 601mm	0.8mm (supported) 1mm (unsupported)	0.3mm	0.5mm	0.4mm	1/1	Yes & Yes	Yes (min space 0.5 mm)	Yes
Ultrasint® TPU 88A	100 µm	0.8mm	± 0.3% (min of ± 0.3mm)	196 x 176 x 315 mm	1mm (supported) 1.2mm (unsupported)	-	0.7mm	0.7mm	1/1	Yes & Yes	-	Yes (5mm)
Ultrasint® PA11	100 µm	0.8mm	XY: ± 0.3% (min: 0.4 mm) Z: ±0.6% (min: 0.6mm)	300 x 300 x 590 mm	0.8mm (supported) 1.5mm (unsupported)	-	0.5mm	0.5mm	1/1	Yes & Yes	-	Yes (5mm)
Ultrasint® PA11 ESD	100 µm	0.7mm	± 0.4% (min of ± 0.4mm)	Raw : 150 x 200 x 250 mm	0.7mm (supported) 1mm (unsupported)	-	0.5mm	0.5mm	1/1	Yes & Yes	-	Yes (5mm)
Ultrasint® PA11 CF	100 µm	1mm	± 0.3% (min of ± 0.3mm)	Raw : 320 x 280 x 330 mm	1.5mm (supported) 1.5mm (unsupported)	-	0.5mm	0.5mm	1/1	Yes & Yes	-	Yes (5mm)

MJF Technology

MATERIAL	LAYER THICKNESS	MINIMUM WALL THICKNESS	ACCURACY	MAX SIZE (mm)	STEMMED ELEMENTS	MINIMUM VISIBLE DETAIL	ENGRAVING	EMBOSSING	ENLARGEMENT RATIO	INTERLOCKING & ENCLOSING PARTS	ASSEMBLY	HOLLOWING
PA12	80 µm	Flexible: 0.8mm Rigid: 2mm	XY: ±0.3% (min of ±0.3 mm) Z: ±0.5% (min of ±0.5mm)	Raw: 370 x 274 x 380 mm	0.7mm (supported) 0.9mm (unsupported)	0.2mm	0.3mm	0.4mm	1/1	Yes & Yes	Yes (min space 0.5 mm)	Yes
PP	120 µm	0.8mm	XY: ±0.6% (min of ±0,7 mm) Z: ±1% (min of ±1.1mm)	360 x 264 x 370 mm	1mm (supported) 1.2mm (unsupported)	-	0.5mm	0.5mm	1/1	Yes & Yes	-	Yes (5mm)
Ultrasint® TPU01	100 µm	0.8mm	± 0,3% (min of ± 0.3mm)	274 × 370 × 380 mm	1mm (supported) 1.2mm (unsupported)	-	0.7mm	0.7mm	1/1	Yes & Yes	-	Yes (5mm)
Multi Jet Fusion PA11	100 µm	1mm	XY: ±0.3 % (min: 0.3mm) Z: ±0.7% (min: 0.6mm)	Raw: 274 x 370 x 380 mm	1mm (supported) 1.5mm (unsupported)	-	0.5mm	0.5mm	1/1	Yes & Yes	-	Yes (5mm)

FDM Technology

MATERIAL	LAYER THICKNESS	MINIMUM WALL THICKNESS	ACCURACY	MAX SIZE (mm)	STEMMED ELEMENTS	MINIMUM VISIBLE DETAIL	ENGRAVING	EMBOSSING	ENLARGEMENT RATIO	INTERLOCKING & ENCLOSING PARTS	ASSEMBLY	HOLLOWING
r-PET	250 µm	1.2mm	:± 0,3% (min ± 0.3mm)	400 x 400 x 400 mm	1.25mm (supported) 1.25mm (unsupported)	-	0.8mm	3mm	-	No & No	-	No