

## MULTIJET FUSION 3D PRINTING

### FINISHED PARTS WITH HIGH QUALITY THERMOPLASTICS BY THE 3D MULTIJET FUSION PROCESS

- Parts of special configuration and difficult geometry
- Not obtainable by other procedures
- Parts quality monitoring during the whole fabrication process
- Fully functional parts



- Extreme dimensional precision
- Maximum level of detail
- Optimal mechanical properties
- Accepted formats: STL, IGES, STEP...



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### TECHNICAL SPECIFICATIONS:

The materials available for this technology are PA, PP and TPU thermoplastics, strong enough to be used in both prototypes and perfectly functional production parts, offering uniform surfaces and an extraordinary level of detail never reached before with 3D technologies. Parts produced in this way show a non-homogeneous grey colour that can be dyed in several colours displaying a crisp and uniform aspect. Other optional post-processing methods are available such as painting or even electroplating, although in these cases the final dimensions and tolerances of the parts may be affected by the additional coating thicknesses applied.

Characteristic	Norm	Measured in Axis	HP PA12	HP PA12 GB40	HP PA11	HP PP	Lubrizol TPU
Tensile strength	ASTM D638 (TPU: DIN53504)	XY	50Mpa	29Mpa	52Mpa	29Mpa	16Mpa
		Z		30Mpa	54Mpa		7Mpa
Elongation at break	ASTM D638 (TPU: DIN53504)	XY	17%	10%	36%	20%	370%
		Z	9%	5%	25%	14%	90%
IZOD impact strength, notched (3,2mm and 23°C)	ASTM D256	XY	4,2kJ/m <sup>2</sup>	3,0kJ/m <sup>2</sup>	6,0kJ/m <sup>2</sup>	3,5kJ/m <sup>2</sup>	no break
		Z	3,8kJ/m <sup>2</sup>		5,0kJ/m <sup>2</sup>	3,0kJ/m <sup>2</sup>	no break
Thermal deflection under load (0,45Mpa)	ASTM D648	XY	175°C	170°C	185°C	100°C	-
		Z		172°C			-
Thermal deflection under load (1,82Mpa)	ASTM D648	XY	95°C	110°C	54°C	60°C	-
		Z		120°C			-
VICAT softening temperature under load (10N=10Mpa)	ASTM D1525	XYZ	-	-	-	-	161°C
Specific gravity	ASTM D792	XYZ	1,01gr/cm <sup>3</sup>	1,30gr/cm <sup>3</sup>	1,05gr/cm <sup>3</sup>	0,87gr/cm <sup>3</sup>	1,17gr/cm <sup>3</sup>
Tolerances <sup>[1]</sup> (dimensions ≤80mm)	C <sub>pk</sub> =1	XY	±0,28mm	±0,32mm	±0,37mm	±0,35mm	±0,49mm
		Z	±0,47mm	±0,97mm	±0,95mm	±0,80mm	±0,96mm
Flammability (sample thickness 0,75mm)	UL94	XYZ	HB	n/a	n/a	n/a	n/a
Hardness	Shore A	XYZ	-	-	-	-	90°
Used vs. new powder ratio	-	-	80/20	70/30	70/30	100/0	80/20

[1] If needed, these tolerances can be tightened by subsequent machining of the required dimensions.

**LIMITATION OF LIABILITY:** This technical information shows material typical values and should not be used for specification purposes. The user shall carry out such pre-testing as deemed necessary to verify the suitability of the material or manufacturing process for his specific application.

## MULTIJET FUSION 3D PRINTING

We offer our technical advice service at all stages of the process: from the very conception of the part with meetings with your technical staff and to choose the most suitable material for your application up to the final solid (in STEP format) as a preliminary stage to validate the design and produce it in a very short period of time.

Let us collaborate with your R&D Department or even become part of it, so that your ideas could become reality in no time and at a very low cost.

Designs can be modified very easily, allowing the part to evolve from one stage to the next one (as no moulds or tooling investments are required) to achieve the design that meets your needs.

Parts are completely functional and can withstand the working conditions required in industrial environments.



HP 3D Printing Materials for HP MultiJet Fusion Series 3D Printing Solutions				
HP 3D PA12	HP 3D PA12 GB40	HP 3D PA11	HP 3D PP (BASF)	ESTANE® 3D TPU (LUBRIZOL)
Rigid polymers				Elastomeric Polymers

Stiffness	●	★	●	■	▲
Impact resistance	■	▲	●	■	★
Elongation	■	▲	●	■	★
Dimensional capability	★	●	●	■	■
Level of detail	●	●	★	■	■
Flatness	●	★	■	▲	■
Temperature resistance	■	●	▲	■	★
Chemical resistance	●	n/a	●	★	■
Low moisture absorption	▲	▲	▲	★	■
Lightweight	●	■	●	★	▲

**NEW!!**

**DIFFERENT COLOURS TO DYE YOUR PARTS**



★	●	■	▲
Best	Good	Fair	Not recommended