

Technical Data Sheet

Type: Polyether Thermoplastic Polyurethane (TPU)

Uses: HP Multi-Jet Fusion (MJF) 5200 3D Printer

Base Resin Information:

Physical Properties	Value (Metric)	Unit	Test Method
Specific Gravity	1.16		ASTM D-792
Melting Temperature (by DSC)	192	°C	Lubrizol DSC
Glass Transition Temperature (by DSC)	-31	°C	Lubrizol DSC

* Listed values are "typical (average) values" and should not/cannot be applied for specification purposes and do not constitute any agreed contractual specification/quality of ESTANE® 3D TPU M88A-565 OR UV PW.

Multi-Jet Fusion Printed Part Information:

- ESTANE® 3D TPU M88A-565 OR UV PW parts passed skin sensitization (ISO 10993-10) and cytotoxicity (ISO 10993-5) testing.
- Parts for table below were printed with balanced print mode in half-full print bed height (190 mm) and full print bed height (380 mm). Results shown are from 80/20 stabilized mix.
- Half print beds (190 mm) are recommended to increase the part quality and consistency.

Properties	Measured Values		Unit	Test Method
	Half Bed	Full Bed		
Printing Process Properties				
Print Mode	1-pass	1-pass		
Layer Thickness	100	100	µm	
Printing Layer Time	9.5	9.5	sec	
Half-Bed Printing Time	5.5	11	hours	
Mechanical Properties in X				
Hardness (5 sec)	88 ± 3	88 ± 3	Shore A	ASTM D-2240
Abrasion Volume Loss	120	120	mm ³	DIN-53516 / ISO-4649
Tensile Strength	12.8	10.5	MPa	DIN-53504 / ISO-37
Elongation at Break	285	185	%	DIN-53504 / ISO-37
Compression Set	31	31	%	50% Deflection for 6 h
Mechanical Properties in Z				
Hardness (5 sec)	88 ± 3	88 ± 3	Shore A	ASTM D-2240
Abrasion Volume Loss	110	110	mm ³	DIN-53516 / ISO-4649
Tensile Strength	7.4	6.5	MPa	DIN-53504 / ISO-37
Elongation at Break	75	55	%	DIN-53504 / ISO-37

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Electrical Properties				
Surface Resistance	1.8×10^{11}	1.8×10^{11}	Ω	ANSI/ESD STM 11.11
Volume Resistance	8.9×10^{10}	8.9×10^{10}	Ω	ANSI/ESD STM 11.12
Dimensional Tolerances				
Nominal < 80 mm in X/Y	< ± 0.4	< ± 0.6	mm	
Nominal < 80 mm in Z	< ± 1.1	< ± 1.8	mm	
Nominal > 80 mm in X/Y	< ± 1.0	< ± 1.0	%	
Nominal > 80 mm in Z	< ± 1.2	< ± 2.0	%	

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- Listed values were printed with using HP 5200 Multi-Jet Fusion printer and print bed density was approximately 7 %.
- Tensile specimens were printed in Type 2 per ISO-37 or S2 per DIN-53504.

Reclaimed Powder Information:

- Standard refresh rate of ESTANE® 3D TPU M88A is 80% reclaimed and 20% fresh powder.
- As the powder blend is reclaimed for more printing cycles, the yellowness of the powder blend increases.

Powder Caking Information:

- ESTANE® 3D TPU M88A-565 OR UV is specifically developed to provide EASY and COLD unpacking.
- This feature may provide decreased stress to an operator during powder cleaning and unpacking process.

Supply Form and Standard Packaging:

- ESTANE® 3D TPU M88A-565 OR UV is supplied in powder form and packaged in 300 liter HP certified packaging

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