

HP 3D High Reusability PA 12 FR (enabled by Evonik)

Multi Jet Fusion | PA12 | powder

Compiled by FabDigit from manufacturer technical data. Values below belong to this named product; unreported properties are omitted.

Manufacturer: HP

Source revision: 4AA8-4683ENW, August 2025

Recorded system family: HP Jet Fusion 5600 series

As-printed colour: Gray

Test values are typical reported results, not guaranteed design allowables or finished-part certification. Review the complete source for specimen preparation, orientation and conditioning.

Physical

PROPERTY	VALUE	TEST / CONDITION
Density	1.13 g/cm3	per ASTM D792
Melting Temperature (Tm)	187 deg C	per ASTM D3418; Powder melting point (DSC); part melting temperature 187 deg C by DSC

Mechanical

PROPERTY	VALUE	TEST / CONDITION
Tensile Strength (Ultimate)	46 MPa	per ASTM D638; XY 46 / Z 46; 95 % of parts above 38 MPa
Elastic (Young's) Modulus	2.58 GPa	per ASTM D638; XY 2.58 / Z 2.54 GPa; 95 % of parts 2.25-2.85 GPa
Elongation at Break	4.7 %	per ASTM D638; XY 4.7 / Z 4.0 (at yield XY 3.8 / Z 3.6)

Mechanical - continued

PROPERTY	VALUE	TEST / CONDITION
Charpy Impact, Notched (ISO 179)	2.8 kJ/m2	per ASTM D256; Izod notched 3.2 mm, kJ/m2; XY 2.8 / Z 2.7

Thermal

PROPERTY	VALUE	TEST / CONDITION
Heat Deflection Temp. @ 0.45 MPa	172 deg C	per ASTM D648; XY and Z
Heat Deflection Temp. @ 1.8 MPa	97 deg C	per ASTM D648; 1.82 MPa; XY and Z
Flammability (UL 94)	HB at 1.0 mm; V-2 at 1.8 mm; V-0 at 2.5 mm	XYZ; UL Blue Card available. HAI PLC 0 (all thicknesses); HWI PLC 4 / 2 / 1 at 1 / 1.8 / 2.5 mm (UL 746A); ball pressure 165 deg C (IEC 60695)

Manufacturability

PROPERTY	VALUE	TEST / CONDITION
Powder Particle Size (D50)	55 um	per ASTM D3451
Powder Bulk Density	0.47 g/cm3	per ASTM D1895

Electrical

PROPERTY	VALUE	TEST / CONDITION
Comparative Tracking Index (CTI)	408 V	per ASTM D3638; XY 408 / Z 423
Dielectric Strength	7.6 kV/mm	per ASTM D149; 48 h / 23 deg C / 50 % RH: XY 7.6 / Z 6.7; after 96 h / 35 deg C / 90 % RH: XY 2.5 / Z 1.9

Electrical - continued

PROPERTY	VALUE	TEST / CONDITION
Volume Resistivity	49,600,000,000,000 ohm cm	per ASTM D257; 23 deg C / 50 % RH: XY 4.96E13 / Z 5.71E13
Surface Resistivity	974,000,000,000,000 ohm	per ASTM D257; 23 deg C / 50 % RH: XY 9.74E14 / Z 1.03E15

Selection and finishing

An HP MJF halogen-free PA12 FR for electrical, battery and transport-interior components where the stated fire evidence aligns with the actual certification plan.

Design: Record exact wall thickness, MJF process, orientation and required standard. Finalize a part-level compliance plan before making a fire-performance claim in product documentation.

Finishing: Confirm the as-printed colour for the selected MJF workflow. Treat dyeing, painting and coating as changes to the configuration used in any fire-performance qualification.

Source and document scope

HP manufacturer source reference - 4AA8-4683ENW, August 2025

<https://www8.hp.com/h20195/v2/GetDocument.aspx?docname=4AA8-4683ENW>

FabDigit product page: <https://www.fabdigit.com/materials/polymer-pa12/hp-pa-12-fr/>

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