MULTI JET FUSION

Polypropylene

Genuine Polypropylene for Chemical-Resistant, Weldable MJF Parts

HP 3D High Reusability PP is genuine polypropylene printed by HP Multi Jet Fusion: excellent chemical resistance, low moisture absorption and a density lighter than water, and it welds to injection-moulded PP. Fluid reservoirs, piping, tanks, automotive parts and orthotics print in the same polymer as the moulded production part.



BUILD VOLUME	LEAD TIME	LAYER HEIGHT	TOLERANCE
380 × 284 × 380 mm	**4-8 business days**	**0.08 mm**	**±1.75% (min ±0.7 mm)**

MECHANICAL PROPERTIES

Read this group as a balance of stiffness and give. Tensile modulus shows how firmly a part resists bending: polypropylene is less stiff than PA12, so clips and thin walls deflect with less force, and load-bearing brackets need thicker sections than the same design in PA12. Tensile strength and stiffness are the same in XY and Z, so a part resists static load the same way whichever way it is built.

Elongation at break is higher in XY than in Z, so lay flexing features such as clips and latches in the XY plane. Notched impact strength shows how the material handles a sharp notch, so radius the roots of clips and bosses on parts that will be knocked.

PROPERTY	VALUE	TEST STANDARD
Tensile Strength (XY / Z)	**29 / 29 MPa**	ASTM D638 Type I
Tensile Modulus (XY / Z)	**1600 / 1600 MPa**	ASTM D638 Type I
Elongation at Yield (XY / Z)	**9.5 / 9.5 %**	ASTM D638 Type I
Elongation at Break (XY / Z)	**20 / 14 %**	ASTM D638 Type I
Izod Impact Strength, Notched 3.2 mm (XY / Z)	**3.5 / 3.0 kJ/m²**	ASTM D256 Method A

THERMAL PROPERTIES

Heat deflection temperature shows how warm a loaded part can run before it bends. Polypropylene holds its shape under light load well above room temperature, but its deflection temperature drops sharply under higher load, so size loaded parts that run warm from the 1.82 MPa value.

PROPERTY	VALUE	TEST STANDARD
HDT @ 0.45 MPa (XY / Z)	**100 / 100 °C**	ASTM D648
HDT @ 1.82 MPa (XY / Z)	**60 / 60 °C**	ASTM D648
Powder Melting Point (DSC)	**138 °C**	ASTM D3418

PHYSICAL PROPERTIES

Low density is the signature of polypropylene: parts weigh less than the same part in PA12 and are lighter than water, which keeps worn, handheld and moving parts light.

Powder values describe the HP 3D High Reusability PP feedstock. HP also publishes the melt flow index of the powder, which helps compare it with the moulding grade when printed parts are welded to moulded PP.

PROPERTY	VALUE	TEST STANDARD
Part Density	**0.87 g/cm³**	ASTM D792
Powder Particle Size	**62 µm**	ASTM D3451
Powder Bulk Density	**0.34 g/cm³**	ASTM D1895
Melt Flow Index, Powder (230 °C / 2.16 kg, approx.)	**8 g/10 min**	ASTM D1238

CHEMICAL PROPERTIES

HP judges chemical resistance by mechanical property retention, dimensional stability and weight change after immersion, and publishes one overall result across the four chemical classes it tested, not a rating per class or per chemical.

HP names no individual fluids, so treat the result as screening guidance and confirm resistance with application-specific testing in the actual fluid, concentration and temperature before production release, especially for fuels and aromatic or chlorinated solvents.

CHEMICAL	HP IMMERSION TEST	HP RESULT
Acids, bases, organic solvents and aqueous solutions	**7 and 30 days**	**Excellent overall**

BIOCOMPATIBILITY AND COMPLIANCE

Each status comes from HP's regulatory summary for HP 3D High Reusability PP. A third-party laboratory tested parts printed on the Jet Fusion 5200/5210 from 80% reused powder with HP's agents, then sand blasted, soaked in isopropanol for 30 minutes and rinsed in deionized water, to ISO 10993-5, -10 and -11 and the USP pyrogen test, and HP expects similar parts to suit FDA and ISO 10993 guidance for intact-skin devices; each device maker tests its own device.

HP tested printed parts for RoHS substances, PAHs, phthalates, bisphenol A and soluble heavy metals under the ASTM F963 toy standard, and declares REACH registration and no intentionally added GADSL substances. HP states that no HP 3D material is approved for food contact, and it publishes no UL 94 rating for this grade.

STANDARD	STATUS
ISO 10993-5 (Cytotoxicity) Test article extract met the requirements; third-party laboratory testing of parts printed on the Jet Fusion 5200/5210 from 80% reused powder with HP fusing and detailing agents, sand blasted, soaked 30 minutes in isopropanol and rinsed in deionized water	HP tested
ISO 10993-10 (Irritation and sensitization) Not a sensitizer in the guinea pig test and met the intracutaneous injection requirements; parts printed on the Jet Fusion 5200/5210 from 80% reused powder, sand blasted, soaked 30 minutes in isopropanol and rinsed in deionized water	HP tested
ISO 10993-11 (Acute systemic toxicity) No mortality or evidence of systemic toxicity; parts printed on the Jet Fusion 5200/5210 from 80% reused powder, sand blasted, soaked 30 minutes in isopropanol and rinsed in deionized water	HP tested
USP <151> Pyrogen test Met the requirements for the absence of pyrogens; parts printed on the Jet Fusion 5200/5210 from 80% reused powder, sand blasted, soaked 30 minutes in isopropanol and rinsed in deionized water	HP tested

FDA Intact Skin Surface Devices guidance HP expects similar parts made under recommended conditions to suit FDA and ISO 10993 guidance for intact skin surface devices; each customer tests its own device	HP statement
RoHS Directive 2011/65/EU (EU 2015/863) Printed parts tested to IEC 62321; RoHS heavy metals, bromine and chlorine not detected	HP tested
EU REACH REACH registrations completed by HP and/or its partner; no SVHC intentionally added	HP declaration
PAHs in printed parts No listed polycyclic aromatic hydrocarbons detected above 4 ppb (GC/MS)	HP tested
ASTM F963-17 soluble heavy metals (toys) No soluble heavy metals detected in parts printed from fresh powder on the Jet Fusion 5200; regulated phthalates (CPSIA Section 108) and bisphenol A not detected; chemical composition testing only	HP tested
GADSL automotive declarable substances GADSL substances not intentionally added; material data entered in IMDS	HP declaration

MANUFACTURING

Colours & finishes	**Anthracite grey; bead blasted**

SUPPORTING DOCUMENTS

RoHS declaration