HP 3D High Reusability PA 12 Glass Beads

Materials Technical Fact Sheet

General Properties

Common information for all print modes

Category	Measurement	Value	Method
General Properties	Powder melting point (DSC)	186 °C/367 °F	ASTM D3418
	Particle size	58 µm	ASTM D3451
	Bulk density of powder	0.48 g/cm³ 0.017 lb/in³	ASTM D1895
	Density of parts	1.3 g/cm³ 0.047 lb/in³	ASTM D792
Reusability	Refresh ratio for stable performance	30%	
Environmental conditions	Recommended relative humidity	50-70% RH	

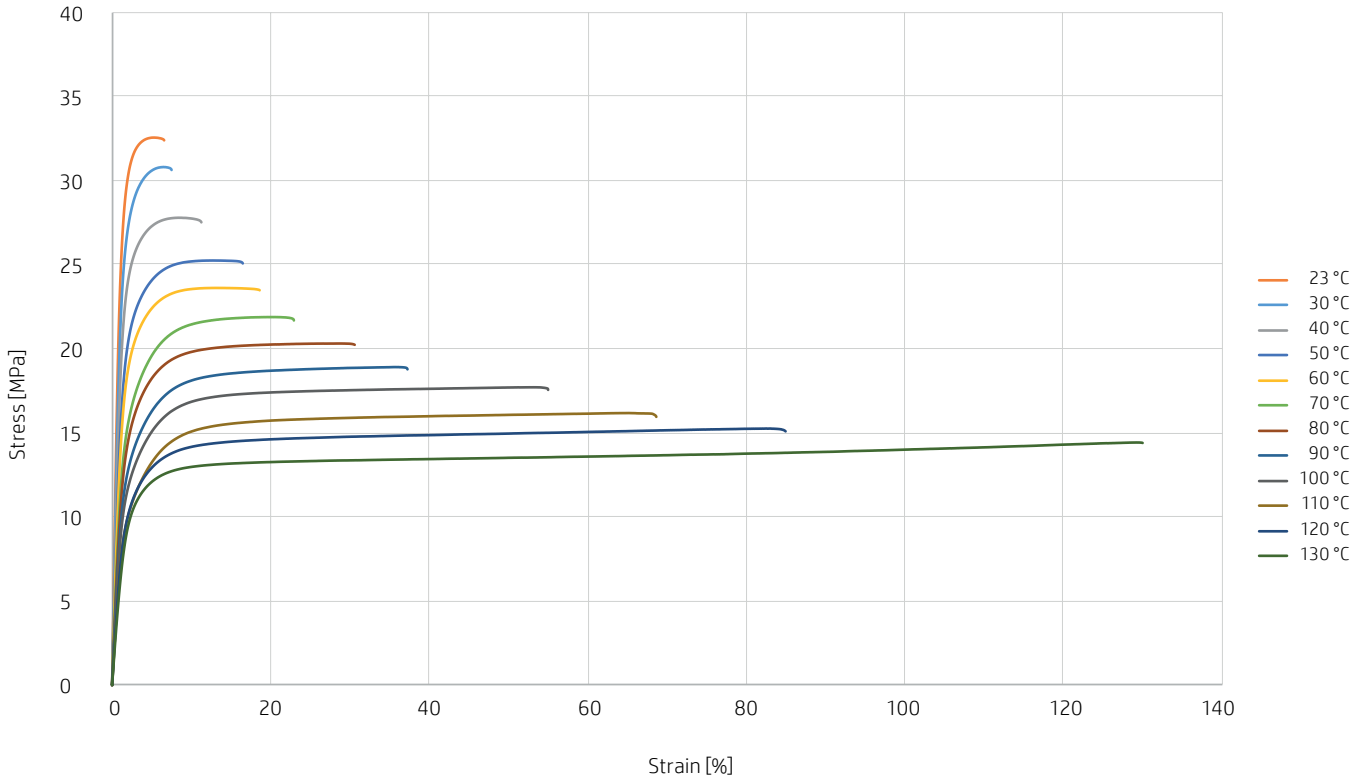
Balanced print mode

Technical specifications[1]

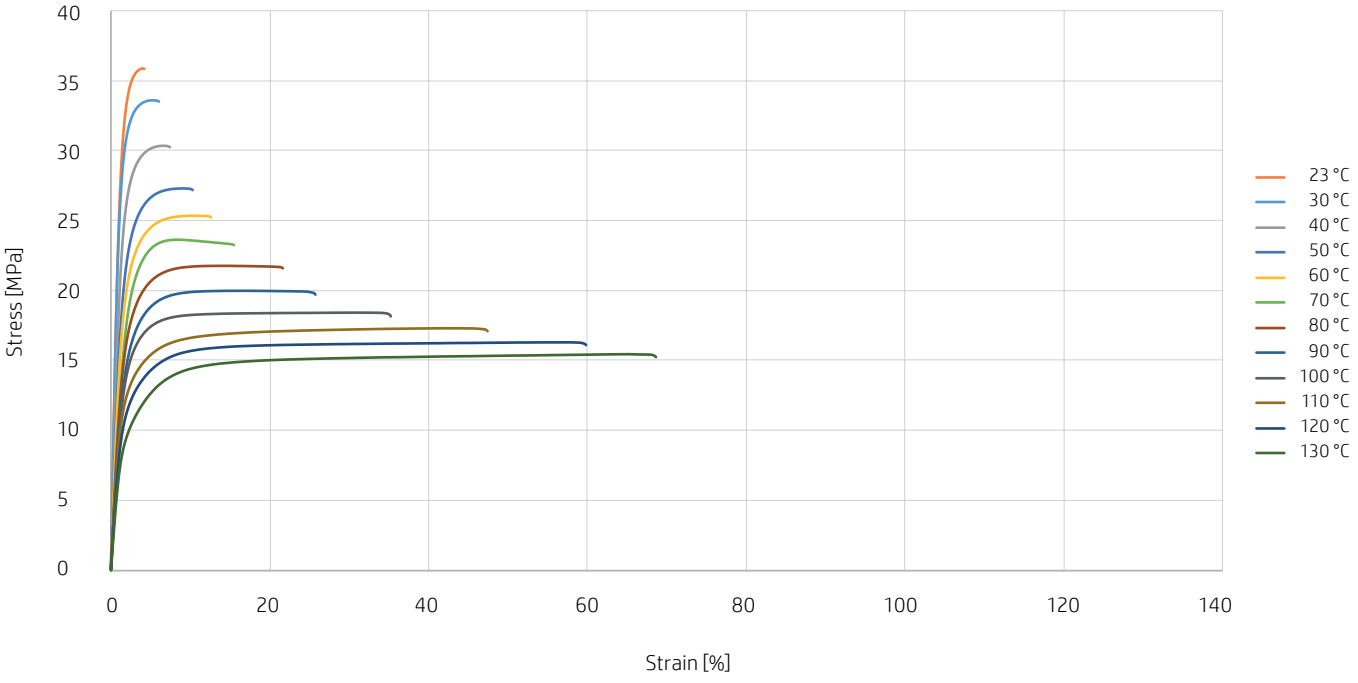
Category	Measurement	Specimen	Value	Method
Mechanical properties	Tensile strength, max load,[2] XY, XZ, YX, YZ	Type V	30 MPa/4351 psi	ASTM D638
		Type I	30 MPa/4351 psi	ASTM D638
	Tensile strength, max load,[2] ZX, ZY	Type V	30 MPa/4351 psi	ASTM D638
		Type I	30 MPa/4351 psi	ASTM D638
	Tensile modulus,[2] XY, XZ, YX, YZ	Type V	2500 MPa/363 ksi	ASTM D638
		Type I	2500 MPa/363 ksi	ASTM D638
	Tensile modulus,[2] ZX, ZY	Type V	2700 MPa/392 ksi	ASTM D638
		Type I	2700 MPa/392 ksi	ASTM D638
	Elongation at break,[2] XY, XZ, YX, YZ	Type V	10%	ASTM D638
		Type I	9%	ASTM D638
	Elongation at break,[2] ZX, ZY	Type V	10%	ASTM D638
		Type I	7%	ASTM D638
	Elongation at yied,[2] XY, XZ, YX, YZ	Type V	9%	ASTM D638
		Type I	8%	ASTM D638
	Elongation at yied,[2] ZX, ZY	Type V	9%	ASTM D638
		Type I	6%	ASTM D638
	Flexural modulus,[3] XY, XZ, YX, YZ		2400 MPa/348 ksi	ASTM D790
	Flexural modulus,[3] ZX, ZY		2700 MPa/392 ksi	ASTM D790
	Flexural strength (@ 5%),[3] XY, XZ, YX, YZ		57.5 MPa/8339 psi	ASTM D790
	Flexural strength (@ 5%),[3] ZX, ZY		65 MPa/9427 psi	ASTM D790
	Charpy impact notched (@23°C/73.4°F), XY, XZ, YX, YZ, ZX, ZY		2.2 kJ/m2	ISO 179-1/1eA
	Charpy impact notched (@-20°C/-4°F), XY, XZ, YX, YZ, ZX, ZY		2.1 kJ/m2	ISO 179-1/1eA
	Charpy impact notched (@-40°C/-40°F), XY, XZ, YX, YZ, ZX, ZY		1.8 kJ/m2	ISO 179-1/1eA
	Izod impact notched (@3.2 mm, 23°C/73.4°F), XY, XZ, YX, YZ, ZX, ZY		3 kJ/m2	ASTM D256 Test Method A
	Izod impact notched (@3.2 mm, -20°C/-4°F), XY, XZ, YX, YZ, ZX, ZY		2.9 kJ/m2	ASTM D256 Test Method A
	Izod impact notched (@3.2 mm, -40°C/-40°F), XY, XZ, YX, YZ, ZX, ZY		2.7 kJ/m2	ASTM D256 Test Method A
	Izod impact notched (@10 mm, 23°C/73.4°F), XY, XZ, YX, YZ, ZX, ZY		2.7 kJ/m2	ASTM D256 Test Method A
	Shore Hardness D, XY, XZ, YX, YZ, ZX, ZY		82	ASTM D2240
Thermal properties	Heat deflection temperature (@0.45 MPa, 66 psi), XY, XZ, YX, YZ		174 °C/345 °F	ASTM D648 Test Method A
	Heat deflection temperature (@0.45 MPa, 66 psi), ZX, ZY		175 °C/347 °F	ASTM D648 Test Method A
	Heat deflection temperature (@1.82 MPa, 264 psi), XY, XZ, YX, YZ		114 °C/237 °F	ASTM D648 Test Method A
	Heat deflection temperature (@1.82 MPa, 264 psi), ZX, ZY		120 °C/248 °F	ASTM D648 Test Method A

Stress-strain curves at different temperatures

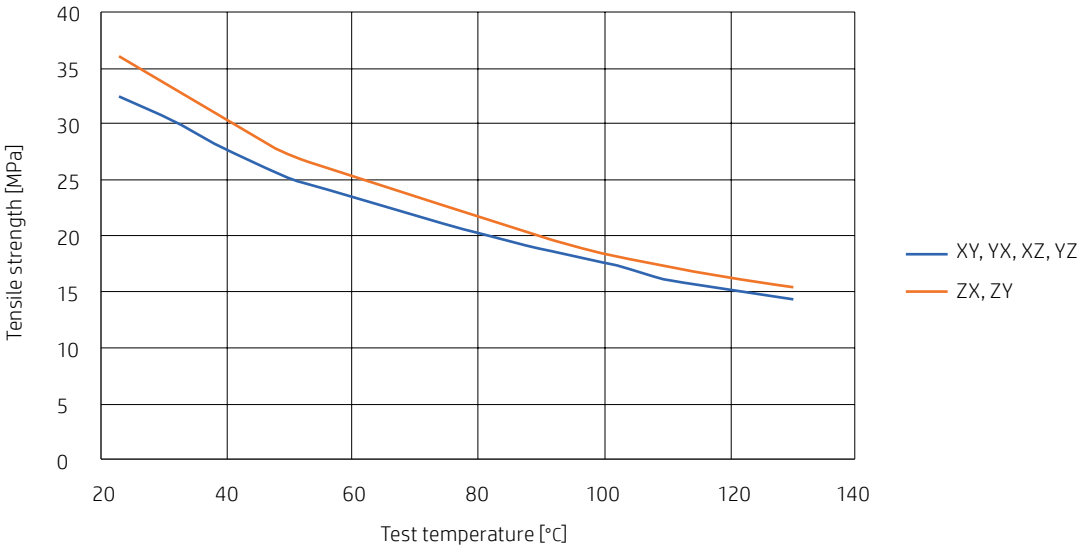
Stress-strain curves at different temperatures. XY-YX-XZ-YZ Orientations.



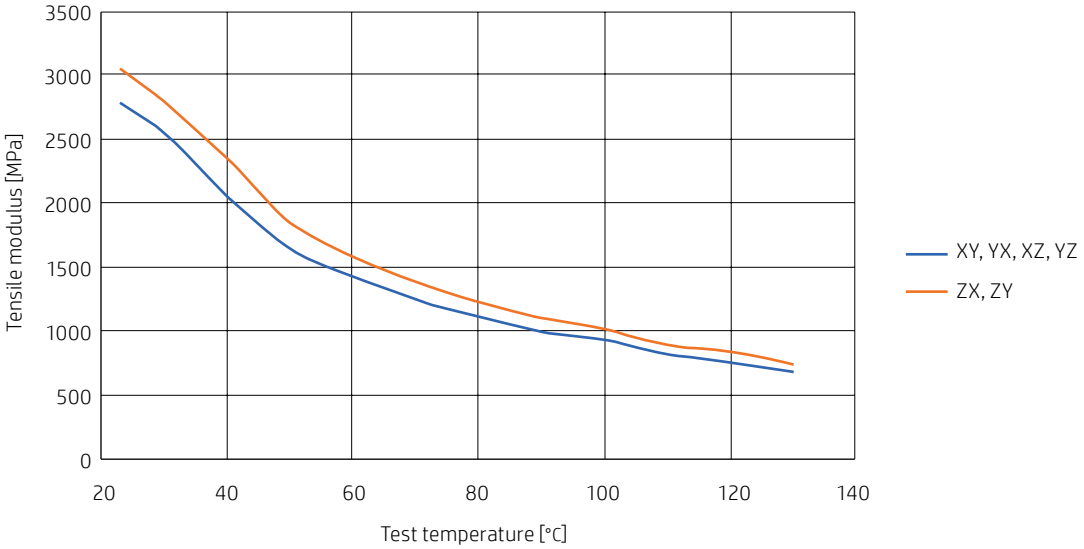
Stress-strain curves at different temperatures. ZX-ZY Orientations.



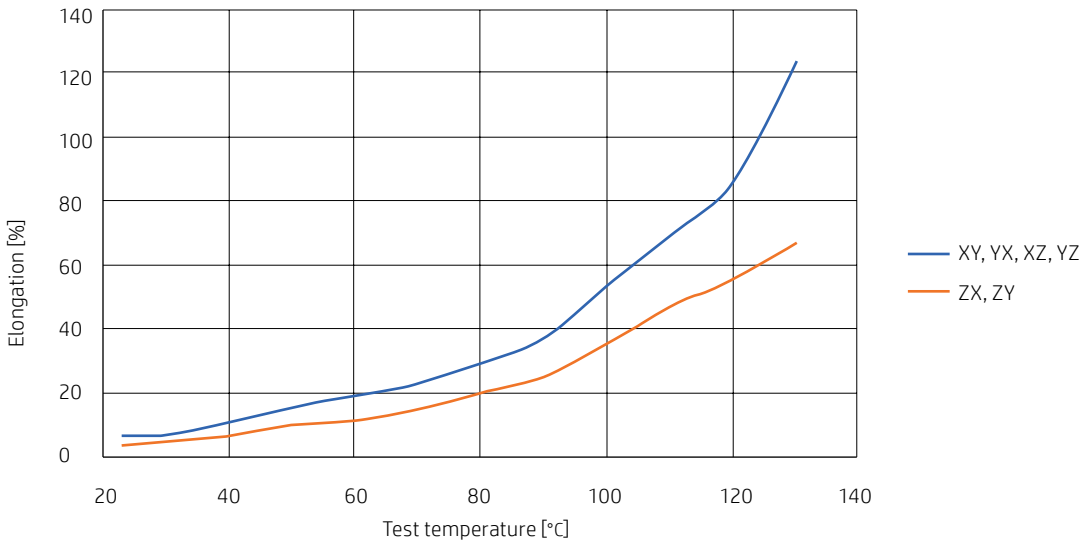
Tensile strength at different temperatures



Tensile modulus at different temperatures



Elongation at break at different temperatures



Certifications

- UL 94
- UL 746A

Dynamic security enabled printer. Only intended to be used with cartridges using an HP original chip. Cartridges using a non-HP chip may not work, and those that work today may not work in the future. More at: hp.com/go/learnaboutsupplies.

For more information, please visit
hp.com/go/3DMaterials

1. The following technical information should be considered representative of averages or typical values and should not be used for specification purposes. These values are with FW TATDAG_15_18_11.69 and have been obtained from a sample of specimens printed in plots with 6% packing density. Separation between specimens in the plot was 10 mm. Modulus has been calculated using the slope of the regression line between 0.05% and 0.25% strain measured with an automatic extensometer during the entire test. Crosssection dimension measures are done using a micrometer with round ends. Conditioning according to ASTM D618 Procedure A: 48 hours after printing and unpacking of the parts at 23°C/73°F and 50% RH. Orientations defined according to ASTM F2971.

4AA7-3399ENW, September 2018

This is an HP Indigo digital print.