NOVAMID®
ID1030 CF10

Novamid® ID1030 CF10 is a new polyamide for 3D printing parts with properties close to what is usually achievable only by injection molding. With a loading of 10% carbon fiber, it produces stronger, tougher and stiffer 3D printed parts while it can be printed at the same speeds as unreinforced plastics.

Novamid® ID1030 CF10 is a new carbon fiber filled PA6/66 copolymer filament for 3D printing durable structural parts with high dimensional stability, warpage free. Filled with only 10% of actual carbon fiber – much lower than most carbon filled materials – Novamid® ID1030 CF10 enables parts that are stronger, stiffer and tougher parts with higher tensile strength and modulus.

Designed especially for 3D printing, its excellent mechanical properties and smooth appearance make it ideal for demanding automotive structural applications that require robust performance at elevated temperatures.

The material can be printed on standard desktop fused filament fabrication (FFF) machines with a hardened nozzle. Tests have shown that users can run their printers at the same speeds as with unreinforced plastics, while achieving considerably better strength and toughness.

Tested on open FFF platforms

Novamid® ID 1030 CF10 has been tested on several open FFF platforms, including on GermanRepRap and the new Ultimaker S5. Its printing profile is available on Ultimaker's Cura platform.

Key Benefits

- 3D printable at same speed as unreinforced plastics thanks to low carbon loading of 10%
- Enables properties close to what is usually achievable only by injection molding
- Durable parts with good mechanical properties due to high inter-layer strength
- Made from DSM Novamid copolyamide PA6/66, which is used in automotive and electronics for many years
- HDT of 184ºC at 1.8MPa
- Very low warpage compared to unfilled PA
- Characteristic matte black surface-finish with less roughness

Applications

- Automotive under-the-hood applications
- Protective and supporting sports gear
- High performance functional parts
- Manufacturing jigs and fixtures
- Medical braces and prosthetics
- Light weight applications
- Applications requiring durable and stiff parts with good mechanical properties

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Properties	Typical Data	Unit	Test method
Mechanical Properties (Injection Molded)	dry / cond		
Tensile modulus	7570 / -	MPa	ISO 527-1/-2
Yield stress	110 / -	MPa	ISO 527-1/-2
Yield strain	2.8 / -	%	ISO 527-1/-2
Stress at break	110 / -	MPa	ISO 527-1/-2
Strain at break	3 / -	%	ISO 527-1/-2

Mechanical Properties	Value	Unit	Test method
Tensile modulus (3D printed: flat X-X direction)	7630	MPa	ISO 527-1/-2
Stress at yield (3D printed: flat X-X direction)	110	MPa	ISO 527-1/-2
Strain at yield (3D printed: flat X-X direction)	2.5	%	ISO 527-1/-2
Stress at break (3D printed: flat X-X direction)	110	MPa	ISO 527-1/-2
Strain at break (3D printed: flat X-X direction)	2.2	%	ISO 527-1/-2
Tensile modulus (3D printed: flat Y-X direction)	2720	MPa	ISO 527-1/-2
Stress at yield (3D printed: flat Y-X direction)	63	MPa	ISO 527-1/-2
Stress at yield (3D printed: flat Y-X direction)	3	%	ISO 527-1/-2
Stress at break (3D printed: flat Y-X direction)	58	MPa	ISO 527-1/-2
Strain at break (3D printed: flat Y-X direction)	4.5	%	ISO 527-1/-2

Thermal Properties	Dry / Cond	Unit	Test method
Melting temperature (10°C/min)	200 / -	°C	ISO 11357-1/-3
Glass transition temperature (10°C/min)	58 / -	°C	ISO 11357-1/-2
Temp. of deflection under load (1.80 MPa)	153 / -	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	184 / -	°C	ISO 75-1/-2

Other Properties	Dry / Cond	Unit	Test method
Density	1170 / -	kg/m³	ISO 1183

For more information and buying options, please visit www.dsm.com/additive-manufacturing/

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