Novamid® ID1030 CF10

Novamid® ID1030 CF10 is a new PA6/66 grade of carbon reinforced polyamide that brings properties of 3D printed parts close to what is usually achievable only by injection molding. With a loading of 10% carbon fiber, printed parts are stronger, tougher and stiffer compared with other FFF materials available, while matching the easy and fast printing of unreinforced plastics.

The new carbon fiber filled Novamid® ID1030 CF10 filament 3D prints durable, structural parts with high dimensional stability, warpage free. Despite the low carbon fiber loading of only 10% - much lower than other carbon filled materials - it creates parts that are clearly stronger, stiffer and tougher with higher tensile strength and modulus.

Designed especially for 3D printing, these excellent mechanical properties and smooth appearance make it ideal for demanding and structural applications that require robust performance and/or at elevated temperatures, across a broad range of markets.

The material is designed specifically for 3D printing, and 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.

Key Benefits & Properties

- 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
- Very low warpage compared to unfilled PA
- 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 184°C at 1.8MPa
- 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
- Structural applications requiring durable and stiff parts with good mechanical properties

3D printing with Novamid® ID1030 CF10 results in stronger, stiffer and tougher parts.

DSM
BRIGHT SCIENCE. BRIGHTER LIVING.

"Can deliver the performance needed for professional use"

Tested the Novamid® ID1030 CF10 on an Ultimaker S5

Tested on open FFF platforms

Novamid® ID1030 CF10 has been tested on several open FFF platforms, including on the new Ultimaker and GermanRepRap.

Sales

Novamid® ID1030 CF10 is available in spools of 1.75 and 2.85 mm at DSM AM distributors, including FormFutura (www.formfutura.com), MCPP www.mcpp-3dp.com and Nexeo 3D Solutions (www.nexeo3d.com).

DSM uses environmentally friendly cardboard spools for easier recycling.

Technical Data (Provisional)

Material specific properties (3D printed)	(Provisional)		
	dry	unit	test method
Tensile modulus (3D printed: flat X-X direction)	7625	MPa	ISO 527-1
Stress at yield (3D printed: flat X-X direction)	112	MPa	ISO 527-1
Strain at yield (3D printed: flat X-X direction)	2,5	%	ISO 527-1
Stress at break (3D printed: flat X-X direction)	110	MPa	ISO 527-1
Strain at break (3D printed: flat X-X direction)	2,2	%	ISO 527-1
Tensile modulus (3D printed: flat Y-X direction)	2720	MPa	ISO 527-1
Stress at yield (3D printed: flat Y-X direction)	63	MPa	ISO 527-1
Strain at yield (3D printed: flat Y-X direction)	3	%	ISO 527-1
Stress at break (3D printed: flat Y-X direction)	58	MPa	ISO 527-1
Strain at break (3D printed: flat Y-X direction)	4,5	%	ISO 527-1

More information can be found on www.dsm.com/additive-manufacturing/

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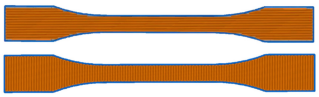
Novamid®

Novamid® ID 1030-CF10

PA6/66

3D printing grade, 10% Carbon Reinforced

Print Date: 2018-10-23



Upper figure: Flat X-X Direction
Lower figure: Flat Y-X Direction

Properties	Typical Data	Unit	Test Method
Mechanical properties	Value		
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
Strain 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		
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		
Density	1170 / -	kg/m³	ISO 1183