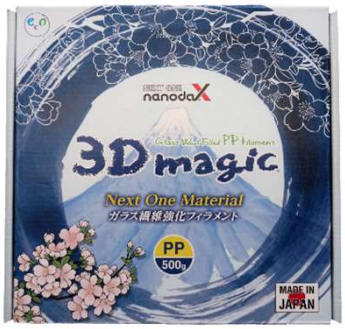

3D magic Glass Wool Filled PP Filament

3D printer filament

Polypropylene【PP】

patented

PP is so high-shrinkable polymer in the range of 20/1000 that it would not suit to 3D printer filament use. Nanodax developed low-shrinkage PP filament based on the Glass Wool innovative technology.

3D magic is suitable for practical products

Advantage **lightweight, acid/alkali resistance**

Jig / masking jig

Before (tooling)

After

Chemical piping joint (trial)

Semi-con fab
Chemical piping

◇ 3D is ideal for prototyping
◇ machining to 3D

Advantage **Suppress warpage, good adhesion between layers**

Cup/ bottle

endure hot water

No water leak

Large size printing
Up to 50cm

overhang
22degrees
Good hinge

Good coloring

Used for robot arms & aerospace

Advantage **New manufacturing proposal**

Conventional plaster method

◇ conventional prosthetic limbs use plaster and PP material
◇ it is possible to make by 3D printer

On-demand 3D

On-demand production of prosthetic limbs

◇ Trial started in Korea
◇ Applicable for pets
◇ Project start in Cambodia & Cote d'Ivoire
※ Provision of 3D prosthetic limbs as CSR

◇ Glass wool is a recycled material of waste glass and is used as a thermal insulation material in construction & refrigerator.
◇ The used Glass wool is discarded. Nanodax developed the world's first technology to be reused. We up-cycle as a high value-added product that adapts to the circulating society.

contact us

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3D filament material　Physical property comparison table

	3D magic (PP)	ABS	PLA
Heat resistant	120℃ 20min auto clave	Heatproof temp 100℃	No high temperature
Antisolvent	good / no soluble solvent	dissolve in acetone	poor
Interlayer adhesion	very good / no water leak	poor / leak water	poor / leak water
Warping	there is little warpage	warpage & shrinkage are large	there is little warpage
Large product	OK up to 50cm height	NG	OK
Thin product	OK	NG	NG
Crack or chip	very good	good	NG
Water base paint	very good	colorable with acrylic paint	NG
Surface treatment	easy by file	easy by file	NG
Water absorption	hard to absorb	hard to absorb	water absorption
Odor when print	NA	rubber odor	candy odor
Extrusion temp	190℃～250℃	210℃～240℃	190℃～230℃
Bed temp	room～50℃	need more than 80℃	room～60℃
Density	1.0	1.04	1.2
overall	・light & good interlayer adhesion ・strong & heat resistant ・It can be heated and corrected ・good overhang characteristics ・antisolvent	・warping & shrinkage are large ・no good for large and thin design ・interlayer adhesion weak ・rubber smell when printing	・hard & fragile ・no heat resistant ・poor solvent resistance ・cheap ・molding is good

3D magic / material physical property

	MFR	Density	Tensil strength			flexural strenhtg		Temp of distortion	Rockwell hardness
			at yield	at break	modulus	modulus	strength		
	g/10min	kg/m3	Mpa	Mpa	Mpa	Mpa	Mpa	0.45Mpa/ ℃	R scale
3D magic	7.8	1,023	23.2	17.2	1,900	1,930	32.2	100	74

Possibility increase if real goods can be made by 3D magic

◇ Transfer data for local production → Logistics cost & time reduction
◇ Internal structure hollowing → Weight saving & cost down
◇ New design that is impossible by mold becomes possible

3D magic filament spec

printer	FDM system	Nozzle size	0.5㎜φ or above
material	Glass wool filled PP	color	Natural
diameter	1.75㎜	Price (JPY)	¥8,800yen / 500ｇ