Fabrica Materials

NANODIMENSION
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Contact Us

sales@nano-di.com
www.nano-di.com

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Fabrica Materials enable manufacturers to get true plastic and composite material properties with the highest precision in the market.

The wide range of materials displays a variety of mechanical properties, varying degrees of thermal resistance and specialized properties such as transparency and biocompatibility. Each material series brings unique advantages, giving you the flexibility to select the material best suited for your micro-manufacturing needs.

PERFORMANCE
for high thermal resistance

DURABLE
for serial production of demanding applications

TRANSPARENT
for translucent applications

MEDICAL
for applications that require bio-compatibility

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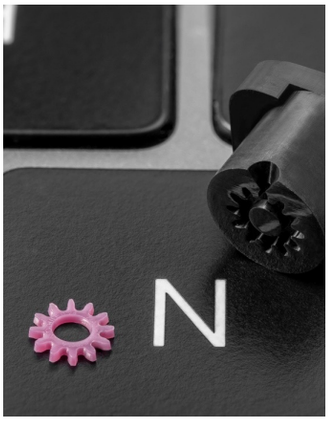
Materials

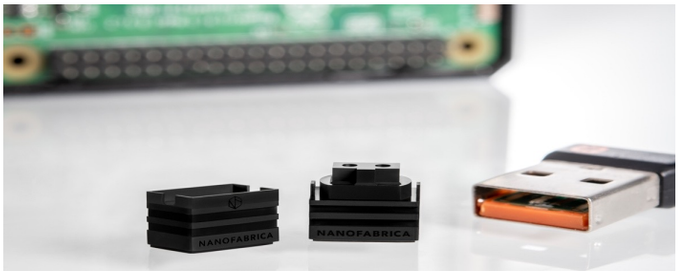
		PERFORMANCE		DURABLE		TRANSPARENT	MEDICAL
		P-900	P-910	D-810	D-820	T-700	M-810
Tensile strength (Mpa)	ASTM D-1708	60	70	50	21	38	50
Young's Modulus (MPa)		660	635	550	321	460	550
Elongation at break (%)		11	15	11	7.5	12	11
Flexural strength (MPa)	ASTM D-790	98	110	80	31.4	73	80
Flexural Modulus (MPa)		2000	2600	1600	512	1350	1600
Flexural max strain (%)		7.6	5.0	6	12	6.5	6
Shore hardness	Scale D ASTM D 2240	90	89	88	76	84	88
Tg (°C)	DMA ASTM D 7028	140	184	120	55	100	120
Df (100GHz)	ASTM D150	0.017		0.015			0.015
Dk (100GHz)		2.14		2.65			2.65
Density of Liquid Resin (gr/cm^3)	ASTM D1475	1.17	1.14	1.08	1.08	1.09	1.08
Density (g/cm3)	ASTM D792	1.27	1.24	1.15	1.19	1.15	1.15
Resolution (µm)		2	2	2	2	5	2

Performance

The Performance series is designed to withstand high temperatures, perfect for miniaturized parts in high performance applications such as electronics or injection molding.

P-900 is a high-resolution, composite ceramic loaded, material with upgraded mechanical properties that offers high-wear resistance for demanding applications.





P-900

Tensile Strength (MPa)	60
Young's Modulus (MPa)	660
Elongation at break (%)	11
Flexural Strength (MPa)	98
Flexural Modulus (MPa)	2000
Flexural max strain (%)	7.6
Shore Hardness (scale D)	90
Tg (°C)	140
Df (@10Ghz)	0.017
Dk (@10Ghz)	2.14
Density (g/cm^3)	1.27
Max Resolution (µm)	2

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Performance

P-910 has an increased glass transition temperature of over 180^{0}C and a heat deflection temperature of over 200^{0}C, for extreme thermal performance. Ideal for prototyping and manufacturing precision parts that require high heat resistance, such as injection molding.

P-910

Tensile Strength (MPa)	70
Young's Modulus (MPa)	635
Elongation at break (%)	15
Flexural Strength (MPa)	110
Flexural Modulus (MPa)	2600
Flexural max strain (%)	5
Shore Hardness (scale D)	89
Tg (°C)	184
Df (@10Ghz)	
Dk (@10Ghz)	
Density of cured bulk (g/cm3)	1.24
Max Resolution (µm)	2

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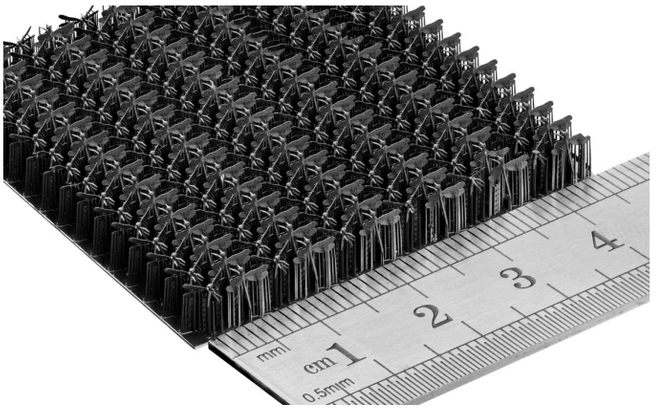
Durable

The Durable series of materials boasts versatile mechanical properties offering both rigid and semi-rigid options for demanding applications. These materials are ideal for serial production, such as consumer smart devices.

The **D-810** is a durable, versatile ABS-like material that enables high structural integrity with high-yield and cost-efficiency.



D-810

Tensile Strength (MPa)	50
Young's Modulus (MPa)	550
Elongation at break (%)	11
Flexural Strength (MPa)	80
Flexural Modulus (MPa)	1600
Flexural max strain (%)	6.0
Shore Hardness (scale D)	88
Tg (°C)	120
Df (@10Ghz)	0.015
Dk (@10Ghz)	2.65
Density (g/cm^3)	1.15
Max Resolution (µm)	2

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Durable

D-820 is a PVC-like material. Components produced with this material have a high endurance over repeated use where flexibility is required, for example, in complex assemblies or parts that cannot be produced by a mold.

D-820

Tensile Strength (MPa)	21
Young's Modulus (MPa)	321
Elongation at break (%)	7.5
Flexural Strength (MPa)	31.4
Flexural Modulus (MPa)	512
Flexural max strain (%)	12
Shore Hardness (scale D)	76
Tg (°C)	55
Df (@10Ghz)	
Dk (@10Ghz)	
Density of cured bulk (g/cm3)	1.19
Max Resolution (µm)	2

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Transparent

The Transparent series are PMMA-like (polymethyl methacrylate) materials that are perfectly suited for production of parts that require varying levels of translucency such as optical elements, microfluidic chips and medical devices.

The **T-700** is a durable, rigid material that enables high structural integrity with high accuracy.

T-700

Tensile Strength (MPa)	38
Young's Modulus (MPa)	460
Elongation at break (%)	12
Flexural Strength (MPa)	73
Flexural Modulus (MPa)	1350
Flexural max strain (%)	6.5
Shore Hardness (scale D)	84
Tg (^{0}C)	100
Density (g/cm^3)	1.15
Max Resolution (µm)	5

Coming:

The **T-710** is an advanced PMMA-like material that is rigid, with 50% transmittance, and can be produced with a high level of accuracy.

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Medical

The Medical series of materials have been specifically designed for use in applications that require bio-compatibility.

The **M-810** is a non-cytotoxic material

This material is suitable for tiny and precise medical device components such cannula, medical diagnostics, imaging and manifolds.

M-810

Tensile Strength (MPa)	50
Young's Modulus (MPa)	550
Elongation at break (%)	11
Flexural Strength (MPa)	80
Flexural Modulus (MPa)	1600
Flexural max strain (%)	6.0
Shore Hardness (scale D)	88
Tg (°C)	120
Df (@10Ghz)	0.015
Dk (@10Ghz)	2.65
Density (g/cm^3)	1.15
Max Resolution (µm)	2

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Anything's possible if you've got a Fabrica!

Precision parts are a huge deal across multiple industries.

The Fabrica micro-manufacturing hub is designed to free innovation from the constraints of traditional manufacturing.

With its incredibly high resolution and repeatable micro-level accuracy and precision, Fabrica transforms micro-additive manufacturing and empowers you to unleash innovation.

In addition to our Fabrica Group's line of precision materials, the Fabrica systems allow for the printing of a wide range of external resins.
Please follow the guidance table to help ensure superior print results and to prevent damage to the system. Be sure to refer to the safety and technical data sheets of the material supplier to ensure compatibility and compliance.

Parameter	Value
Wavelength (nm)	385
Viscosity at printing temperature (cP)	50 - 300
Temperature TERA GIGA	 Room Temperature – 40C Room Temperature
Chemical compatibility (resin – printer parts)	Ensure the material compatibility with : • Aluminum • Aluminum coated with black (hard) anodize • FEP • Stainless steel • Steel • Wet painted Aluminum • Polycarbonate
Safety	Refer to resin safety data sheet for safety and handling guidelines

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