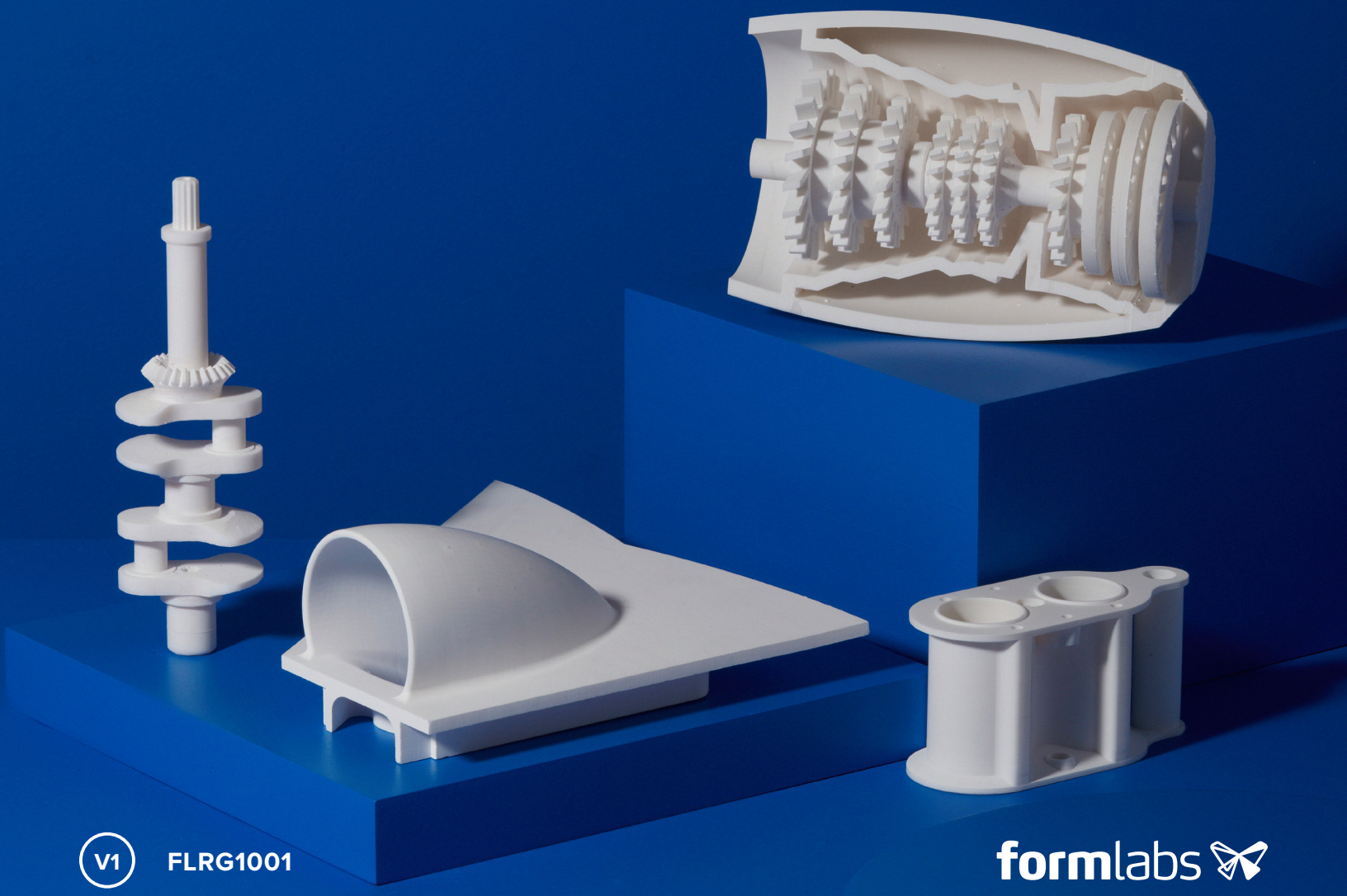
ENGINEERING RESIN

Rigid 10K

Rigid 10K Resin for Rigid, Strong, Industrial-Grade Prototypes

This highly glass-filled resin is the stiffest material in our engineering portfolio. Choose Rigid 10K Resin for precise industrial parts that need to withstand significant load without bending. Rigid 10K Resin exhibits a smooth matte finish and is highly resistant to heat and chemicals.

- Short-run injection mold masters and inserts
- Aerodynamic test models
- Heat resistant and fluid exposed components, jigs, and fixtures
- Simulates stiffness of glass and fiber-filled thermoplastics



V1 **FLRG1001**

formlabs

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RIGID 10K MATERIAL PROPERTIES DATA

	METRIC			IMPERIAL			METHOD
Mechanical Properties	**Green**	**UV[1]**	**UV+Thermal[2]**	**Green**	**UV[1]**	**UV+Thermal[2]**	**Testing Standard**
Ultimate Tensile Strength	55 MPa	65 MPa	53 MPa	7980 psi	9460 psi	7710 psi	ASTM D 638-14
Tensile Modulus	7.5 GPa	10 GPa	10 GPa	1090 ksi	1480 ksi	1460 ksi	ASTM D 638-14
Elongation at Break	2%	1%	1%	2%	1%	1%	ASTM D 638-14
Flexural Strength	84 MPa	126 MPa	103 MPa	12200 psi	18200 psi	15000 psi	ASTM D 790-15
Flexural Modulus	6 GPa	9 GPa	10 GPa	905 ksi	1360 ksi	1500 ksi	ASTM D 790-15
Notched IZOD	16 J/m	16 J/m	18 J/m	0.3 ft-lbf/in	0.3 ft-lbf/in	0.3 ft-lbf/in	ASTM D256-10
Unnotched IZOD	41 J/m	41 J/m	41 J/m	0.8 ft-lbf/in	0.9 ft-lbf/in	0.7 ft-lbf/in	ASTM D4812-11
Thermal Properties							
HDT @ 0.45 MPa	65 °C	163 °C	218 °C	149 °F	325 °F	424 °F	ASTM D 648-16
HDT @ 1.8 MPa	56 °C	82 °C	110 °C	133 °F	180 °F	230 °F	ASTM D 648-16
CTE, 0-150 °C	48 µm/m/°C	47 µm/m/°C	46 µm/m/°C	27 µin/in/°F	26 µin/in/°F	26 µin/in/°F	ASTM E 831-13

All testing specimens were printed using Form 3

[1] Data was obtained from parts printed using Form 3, 100 µm and post-cured with a Form Cure for 60 minutes at 70°C

[2] Data was obtained from parts printed using Form 3, 100 µm and post-cured with a Form Cure for 60 minutes at 60°C and an additional thermal cure at 125°C for 90 minutes

Solvent Compatibility

Percent weight gain over 24 hours for a printed and post-cured 1 x 1 x 1 cm cube immersed in respective solvent:

Solvent	24 hr weight gain, %	Solvent	24 hr weight gain, %
Acetic Acid 5%	<0.1	Isooctane (aka gasoline)	0
Acetone	<0.1	Mineral oil (light)	0.2
Isopropyl Alcohol	<0.1	Mineral oil (Heavy)	<0.1
Bleach ~5% NaOCl	0.1	Salt Water (3.5% NaCl)	0.1
Butyl Acetate	0.1	Sodium Hydroxide solution (0.025% PH 10)	0.1
Diesel Fuel	0.1	Water	<0.1
Diethyl glycol Monomethyl Ether	0.4	Xylene	<0.1
Hydraulic Oil	0.2	Strong Acid (HCl conc)	0.2
Skydrol 5	0.6	Tripropylene glycol monomethyl ether	0.4
Hydrogen peroxide (3%)	<0.1		