AdvancedTek

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PLATINUM PARTNER

Stratasys Origin® One

Featured Materials

HEAT-RESISTANT | LOCTITE® 3D 3955 FST

High-performance, high-modulus product with excellent flexural and tensile physical properties and outstanding flame retardance.

Key Features

- Extremely high HDT delivers negligible deformation in harsh environments
- Printable at 65°C (149°F)
- High modulus
- Passes flammability 2×10 second vertical burn and FST (AITM2-0002, AITM2-0007, AITM3-0005)
- Halogen-free
- Color: Black

Ideal for

- HVAC components for aircraft
- Clips and plugs for control systems
- Connectors, electronic housings
- Clamps, ducts, brackets

Tensile Stress @ Break: **67 MPa**	Elongation @ Break: **2%**	Shore Hardness: **85D**
UL 94 Rating: **V-O at 3mm**	HDT @ 0.455 MPa: **>300°C**	Thermal Aging (105°C for 1,000 hrs): **<5%**
Soak in Gasoline @ 25°C (168 hrs): **< 0.2% weight change**	Young's Modulus: **3,600 MPa**	Notched IZOD Impact: **23 MPa**

Data Sheet

Case Study

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HEAT-RESISTANT | LOCTITE® 3D IND403

High-modulus and suitable for low to moderate temperature molds and tools where accuracy, surface finish and durability are required.

Key Features

- High strength and stiffness
- Machinable
- High-heat deflection temperature
- Excellent surface finish
- Low viscosity
- Color: Black

Ideal for

- Tooling and molds
- Interior applications in automotive

Tensile Stress @ Break: **70 MPa**	Elongation @ Break: **10%**	Shore Hardness: **80D**
QUV Exterior Weathering: **< 20% change @ 1600 hrs**	HDT @ 0.455 MPa: **>80°C**	Thermal Aging (60°C for 3,000 hrs): **<3%**
Thermal Conductivity: **220 mW/(m•K)**	Young's Modulus: **2,600 MPa**	Notched IZOD Impact: **27 MPa**

Data Sheet

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HEAT-RESISTANT | P3 Deflect 120

Strong, heat-resistant material that addresses applications where a combination of high-temperature resistance and good elongation at break are crucial.

Key Features

- High-heat deflection temperature
- Good elongation at break
- Durable & tough
- High tensile strength combined with elongation
- Very good weatherability
- Color: Black

Ideal for

- Wiring housings
- Connectors
- Mold tooling

Tensile Modulus: **3200 MPa**	Elongation @ Break: **6%**	Shore Hardness: **89D**
Flexural Modulus: **3400 MPa**	HDT @ 0.455 MPa: **120°C**	Water Absorption (24 hrs): **0.3%**
Glass Transition Temp: **140 °C**	Ultimate Tensile Strength: **89 MPa**	Notched IZOD Impact: **27 J/m**

Data Sheet

ELASTOMER | LOCTITE® 3D IND402

Single component elastomer material with high elongation and high resilience, excellent tensile strength and high energy return while also not requiring thermal post processing.

Key Features

- True elastomeric behavior
- Excellent interlayer adhesion
- Good rebound performance
- Exceptional durability to compression forces
- Color: Black

Ideal for

- Consumer products
- Lattice structures for sportswear

Tensile Stress @ Break: **5 MPa**	Elongation @ Break: **230%**	Shore Hardness: **76A**
Tear Strength: **28 kN/m**	Solid Density: **1 g/cm³**	Water Absorption (24 hrs): **3%**
Energy Return: **33%**	Young's Modulus: **42 MPa**	Model Layer Exposure: **6.5 seconds**

Data Sheet

ELASTOMER | P3 Stretch IND475™

Single component industrial strength UV resin that cures to a soft, elastomeric material.

Key Features

- True elastomeric behavior
- Excellent interlayer adhesion
- Good rebound performance
- Exceptional durability to compression forces
- Color: Black

Ideal for

- Air & dust gaskets
- Flexible seals & housings
- Cushioning pads

Tensile Stress @ Break: **3 MPa**	Elongation @ Break: **200%**	Shore Hardness: **50A**
Tear Strength: **13 kN/m**	Solid Density: **1.06 g/cm^3**	Water Absorption (24 hrs): **3%**
Energy Return: **55%**	Young's Modulus: **3 MPa**	Volume Resistivity: **5.79E+10 Ω·cm**

Data Sheet

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GENERAL PURPOSE | Ultracur3D® ST45

Reactive urethane photopolymer for tough applications that require a combination of high strength, long-term toughness and impact resistance.

Key Features

- Excellent combination of high strength, toughness and impact resistance
- Very fast printing and post processing
- Low viscosity
- Exceptional surface quality and accuracy
- Color: Black, Clear

Ideal for

- Housings and enclosures
- Consumer facing components
- Parts requiring textures or highly detailed design features

Ultimate Tensile Strength: **62 MPa**	Elongation @ Break: **21%**	Shore Hardness: **81D**
UL 94 Rating: **HB @ 1.5mm**	HDT @ 0.455 MPa: **73°C**	Elastic Modulus: **2300 MPa**
Biocompatibility: **ISO 10993**	Flexural Modulus: **2,430 MPa**	Notched IZOD Impact: **20.8 J/m @ -30°C**

Data Sheet

Case Study

GENERAL PURPOSE | LOCTITE® 3D IND405 Clear

One-part semi-rigid, clear photopolymer with a smooth surface finish and good impact resistance.

Key Features

- Good impact strength
- Excellent surface quality
- Clear finish with secondary process

Ideal for

- Mechanical guides
- Fluid ducts
- Microfluidic devices

Tensile Stress @ Break: **52 MPa**	Elongation @ Break: **127%**	Shore Hardness: **79D**
QUV Exposure @ 800 hrs: **Tensile Stress @ Break: 38 MPa**	HDT @ 0.455 MPa: **53°C**	QUV Exposure @ 800 hrs: **Elongation @ Break 46%**
Water Absorption (24 hrs): **< 2% change**	Young's Modulus: **1,378 MPa**	Notched IZOD Impact: **71 J/m**

Data Sheet

GENERAL PURPOSE | Somos® QuickGen 500

Fast printing economical material with a good balance of flexibility and stiffness.

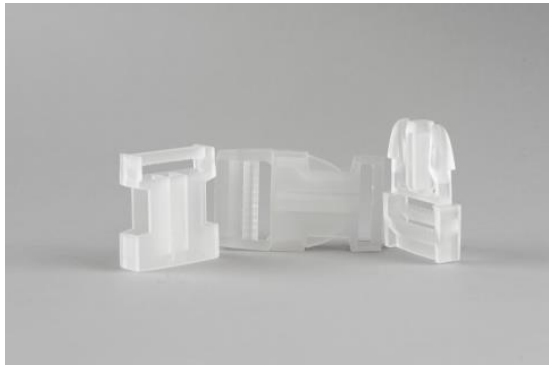
Key Features

- Fast-printing
- Economical
- Good balance of flexibility and stiffness
- Accurate
- Near colorless

Ideal for

- Semi-flexible applications
- Applications with detailed features
- Fluid flow analysis

Elongation @ Break: **42%**	Young's Modulus: **770 MPa**	Glass Transition: **61°C**
Tear Strength: **95 kN/m**	Notched IZOD Impact: **70 J/m**	Flexural Modulus **408 MPa**



Data Sheet

MEDICAL | LOCTITE® 3D MED412

Biocompatible, durable and sterilizable.

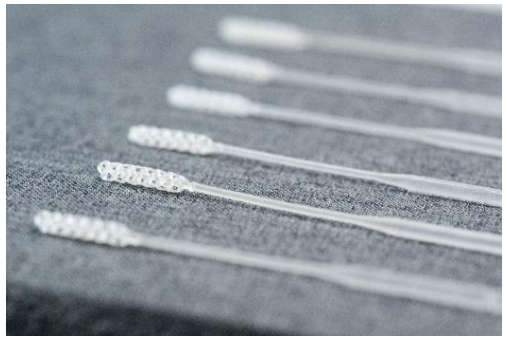
Key Features

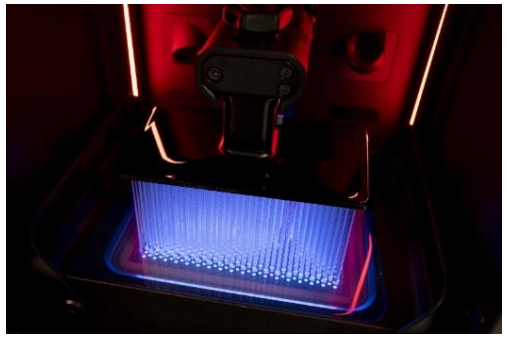
- Medical-grade certified resin
- Biocompatible
- Superb elongation
- Tough
- Good impact strength
- Great surface finish, excellent machinability
- Color: Ultra Clear, White

Ideal for

- Class I and II medical devices
- Medical equipment components

Tensile Stress @ Break: **37 MPa**	Elongation @ Break: **110%**	Shore Hardness: **78D**
Water Absorption (24 hrs): **0.27%**	HDT @ 0.455 MPa: **40°C**	Sterilization: **Autoclavable Steam & ETO**
Biocompatibility: **Cytotoxicity, Sensitization & Irritation compliant**	Young's Modulus: **1,300 MPa**	Notched IZOD Impact: **50 J/m**





Data Sheet

Case Study

MEDICAL | LOCTITE® 3D MED413

A high-performance, high modulus material boasting excellent flexural and tensile physical properties. Stiffness, and toughness make this material ideal for use in a wide variety of impact-resistant medical devices.

Key Features

- Medical-grade certified resin
- Biocompatible
- Excellent print accuracy
- Parts can function at body temperature
- Outstanding surface finish
- Color: White, Clear

Ideal for

- Medical devices
- Hearing aids
- Medical equipment components

Tensile Stress @ Break: **40 MPa**	Elongation @ Break: **50%**	Shore Hardness: **79D**
Water Absorption (24 hrs): **2.7%**	HDT @ 0.455 MPa: **70°C**	Sterilization: **Autoclavable Steam & ETO**
Biocompatibility: **Cytotoxicity, Sensitization & Irritation compliant**	Young's Modulus: **1,600 MPa**	Notched IZOD Impact: **59 J/m**

Data Sheet

Case Study

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TOUGH | LOCTITE® 3D 3172

Durable, tough and impact resistant material, for functional applications that need to perform under stress and high load conditions.

Key Features

- Superior impact strength
- Good surface finish
- Parts can be machined, tapped, or polished.
- Tested in QUV exterior weathering conditions (ASTM G-154) for 800 hours with less than a 15% change in tensile and impact properties.
- Color: Gray, Cyan, Clear

Ideal for

- Tooling and molds
- Interior applications in automotive

Tensile Stress @ Break: **50 MPa**	Elongation @ Break: **100%**	Shore Hardness: **72D**
Water Absorption (168 hrs): **3.1%**	HDT @ 0.455 MPa: **52°C**	Thermal Conductivity: **199 mW/(m•K)**
Water Absorption (24 hrs): **1.5%**	Young's Modulus: **1,400 MPa**	Notched IZOD Impact: **73 J/m**

Data Sheet | Case Study | Video

TOUGH | LOCTITE® 3D 3843

Great balance of strength, stiffness and toughness, with a stunning matte surface finish.

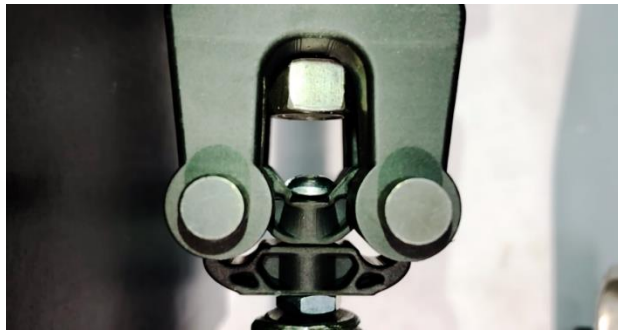
Key Features

- High heat deflection temperature
- Tough with outstanding surface finish
- Superior strength and impact resistance
- Biocompatible
- Color: Black, White, Clear

Ideal for

- Manufacturing aids
- Jigs and fixtures
- Housings and covers
- Insoles

Tensile Stress @ Break: **51 MPa**	Elongation @ Break: **43%**	Shore Hardness: **75D**
Exposure to Motor Oil @ 87°C (500 hrs): **Stress @ Break: 106% of initial strength**	HDT @ 0.455 MPa: **63°C**	Thermal Aging (75°C for 1,000 hrs): **Young's Modulus 120%**
Water Absorption (24 hrs): **1.9%**	Young's Modulus: **1,800 MPa**	Notched IZOD Impact: **53 J/m**



Data Sheet

Case Study

TOUGH | Stratasys Dura 56 from Loctite

Developed for Origin® 3D printers, Dura56 is a durable, impact-resistant photopolymer with an exceptional surface finish and a low cost per kg. For functional applications where aesthetics and robustness are critical.

Tensile Stress @ Break: **42 MPa**	Elongation @ Break: **78%**	Shore Hardness: **64D**
Impact Strength: **56 J/m**	HDT@ 0.455 MPa: **52°C**	Thermal Conductivity: **211 mW/(m•K)**
Water Absorption (24 hrs): **3%**	Young's Modulus: **1,600 MPa**	Notched IZOD Impact: **55 J/m**

Key Features

- 56 J/m notched Izod impact strength
- 78% elongation at break
- 44 MPa ultimate tensile strength
- Exceptional matte surface finish
- Low cost per part

Ideal for

- Enclosures and housings
- Jigs & fixtures
- Functional testing

Data Sheet

Infographic