3818™

PhotoPlastic

HDT60

High Accuracy Rigid

LOCTITE®
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3818™ PhotoPlastic HDT60 High Accuracy Rigid

Description

Loctite's Prototyping products are high performance fluids developed to be highly consistent with extraordinary attributes. LOCTITE® 3818™ is a fast printing, rigid photopolymer, and can be printed with very high resolution features (50 µm). Formulated with exceptional surface finish, low warpage and extremely high print accuracy, this product is perfect for printing accurate prototypes. This product can be easily painted, sanded or machined for further finishing. This product should only be printed on a DLP machine.

Available Color: Black

Mechanical Properties	Method	Green	Post Processed Workflow A	Post Processed Workflow B
Tensile Strength at Break	ASTM D638	31.8 ± 2 MPa [6]	56.9 ± 3 MPa [1]	60.2 ± 1.8 MPa [3]
Young's Modulus	ASTM D638	1,345 ± 99 MPa [6]	2,165 ± 69 MPa [1]	2,298 ± 43 MPa [3]
Elongation at Failure	ASTM D638	19 ± 3.8 % [6]	8.7 ± 1 % [1]	5.1 ± 1.2 % [3]
Ultimate Flexural Strength	ASTM D790-B	40.7 MPa [4]	93.6 ± 2 MPa [2]	101 ± 5 MPa [5]
Flexural Modulus	ASTM D790-B	835 MPa [4]	2,264 ± 65 MPa [2]	2,384 ± 77 MPa [5]
Flexural Strain at Break	ASTM D790-B	> 10 % [4]	> 10 % [2]	6.5 ± 1 % [5]
Other Properties				
XY Warpage	LOCTITE® Standard	0.0%	0.5%	
HDT @ 0.455 MPa	DMA	35.0 °C [7]	47.6 °C [8]	62.1 °C [9]
Solid Density (Green)	ASTM D1475	[11]		
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Liquid Properties		
Viscosity	ASTM D7867	540 ± 80 cP [10]
Liquid Density	ASTM D1475	[11]

"All specimen are printed unless otherwise noted. All specimen were conditioned in ambient lab conditions at 19-23C / 40-60% RH for at least 24 hours." ASTM Methods: D638 Type IV, 5mm/min, D790-B, 2mm/min, D1475, D7867 @ 25°C (77°F)

1. TaskID Reference: FOR7714
2. TaskID Reference: FOR7713
3. TaskID Reference: FOR8082
4. TaskID Reference: FOR8107
5. TaskID Reference: FOR8106
6. TaskID Reference: FOR8081
7. TaskID Reference: FOR7731
8. TaskID Reference: FOR7712
9. TaskID Reference: FOR7027
10. TaskID Reference: FOR7065
11. TaskID Reference:

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Machine Settings

LOCTITE® 3818™ product is formulated to print optimally on any DLP machine. It is recommended to print with between 4-8 mW/cm². Layer time is given below @ 6 mW/cm²:

Layer Thickness:	25µm	50µm	100µm
Base Cure Time:	25 s	25 s	25 s
Model Layer Cure Time:	1.5 s	2 s	3 s

Ec (mJ/cm^2)	7.25
Dp (mm):	0.168

Recommended printing Temperature range: 20°C to 45°C

Post Processing

LOCTITE® 3818™ requires post processing to achieve specified properties. Prior to post curing, support structures should be removed from the printed part, and the part should be washed in a compatible cleaner. Henkel recommends LOCTITE® Cleaner C™. A 5 minute wash in an ultrasonic bath using the recommended cleaners and using compressed air to remove residual solvent from the surface of the material is recommended. Exact times and methods can be found by contacting us at www.loctiteAM.com.

Post Curing

LOCTITE® 3818™ requires post curing to achieve specified properties. A wide array of post cure devices can be used to cure appropriately. See Validation chart for examples of type and time. Exact devices with detail information can be found by contacting us at www.loctiteAM.com

Additional Development Options

Colors: LOCTITE® 3818™ formula is made with additional pigment colors.

Limitations

Post Cure: LOCTITE 3818™ requires broadband spectrum for post cure.

Formula Modification LOCTITE 3818™ has limited potential for any tensile property adjustments.

Vat Printer: LOCTITE® 3818™ formula is likely possible with recirculation VAT that can handle higher viscosity resins.

LCD printers: LOCTITE® 3818™ formula shows limited path forward for LCD projector printers at this time.

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Note

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