

ToughONE™

ToughONE™ expands the capabilities of PolyJet™ technology, bridging the gap between visual appeal and functional performance. Now, you can seamlessly transition from form-fit visual prototypes to robust functional prototypes, making it the ideal choice for industries demanding both strength and precision.

Configuration: ToughONE™ Pure (Single Material)

Material Specifications			
Mechanical Properties	ASTM	Out of Printer	12 hr. Post-Cure @ 45 °C
Tensile Modulus, Mpa (ksi)	D-638-04	2300-2500 (333-362)	2300-2500 (333-362)
Tensile strength, Mpa (ksi)	D-638-03	38-42 (5.5-6.1)	48-53 (7.0-7.7)
Elongation at Break, %	D-638-05	45-55	45-55
Flexural Modulus, Mpa (ksi)	D-790-04	1600-1800 (232-261)	2100-2400 (305-348)
Flexural Strength, Mpa (ksi)	D-790-03	55-64 (8.0-9.3)	77-87 (11.2-12.6)
Izod Impact notched, J/m (ft-lb/in)	D-256-06	40-55 (0.75-1.03)	40-55 (0.75-1.03)
Izod Impact unnotched, J/m (ft-lb/in)	D-4812	1100-1350 (20.6-25.2)	1000-1250 (18.7-23.4)
HDT @ 0.45 Mpa, °C (°F)	D-648-06	47-50 (116.6-122)	59-62 (138.2-143.6)
Tg, °C (°F)	DMA, E"	51 (132.8)	74 (165.2)
Shore Hardness	(Scale D)	80-82	81-83

System Availability	Layer Thickness Capability	Support Structure	Available Color
J826™ Prime J850/35™ Prime J850 Pro J835™	Horizontal build layers down to 14 microns (0.00055 in.), depending on print mode	SUP705 (WaterJet removable)	White

Note: Material properties may vary depending on printing parameters and post-processing conditions.

Configuration: ToughONE™ Reinforced (Digitally Mixed With RGD531 Reinforcer)

Material Specifications				
Mechanical Properties	ASTM	Out of Printer	12 hr. Post-Cure @ 45 °C	12 hr. Post-Cure @ 80 °C
Tensile Modulus, Mpa (ksi)	D-638-04	2400-2600 (348-377)	2500-2800 (363-406)	2600-3100 (377-450)
Tensile strength, Mpa (ksi)	D-638-03	48-53 (7.0-7.8)	56-62 (8.1-9.0)	60-65 (8.7-9.4)
Elongation at Break, %	D-638-05	40-53	25-40	20-30
Flexural Modulus, Mpa (ksi)	D-790-04	1700-1900 (247-276)	2200-2400 (319-348)	2200-2400 (319-348)
Flexural Strength, Mpa (ksi)	D-790-03	60-70 (8.7-10.2)	80-90 (11.6-13.1)	83-91 (12.0-13.2)
Izod Impact printed notched, J/m (ft-lb/in)	D-256-06	90-110 (1.7-2.1)	90-110 (1.7-2.1)	90-110 (1.7-2.1)
Izod Impact unnotched, J/m (ft-lb/in)	D-4812	900-1250 (16.8-23.4)	900-1250 (16.8-23.4)	800-1100 (15.0-20.6)
HDT @0.45 Mpa, °C (°F)	D-648-06	52-54 (125.6-129.2)	64-66 (147.2-150.8)	79-81 (174.2-177.8)
Tg, °C (°F)	DMA, E"	60 (140)	74 (165)	79 (174)
Shore Hardness	(Scale D)	81-83	82-84	83-86

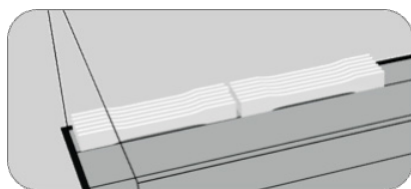
System Availability	Layer Thickness Capability	Support Structure	Available Color
J826™ Prime J850/35™ Prime J850 Pro J835™	Horizontal build layers down to 14 microns (0.00055 in.), depending on print mode	SUP705 (WaterJet removable)	White

Note: Material properties may vary depending on printing parameters and post-processing conditions.

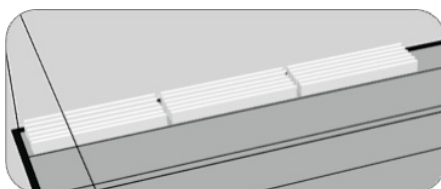
Printing and Measurement Details

The following procedures were used to obtain the values found in this datasheet.

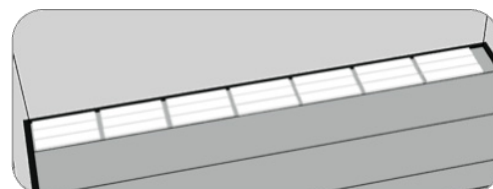
- Post-curing was performed with the [ProLight™ Cure Box](#) at 45/80 °C for 12 hrs using visible blue light (450 nm wavelength).
- Samples were measured within 24 hours of printing or post-curing.
- Support removal was done mechanically, without using waterjet.
- Dogbones and flexural bars were printed glossy in the XZ orientation, in one pass (see illustration below).
- Izod impact bars were printed glossy in XY orientation, in one pass (see illustration below).



Dogbones, glossy XZ



Flexural bars, glossy XZ



Izod impact bars, glossy XY

Note: Material properties may vary depending on printing parameters and post-processing conditions.