

Accura[®] Composite PIV

Rigid material with high contrast color optimized for PIV wind tunnel testing to reduce preparation time and improve aerodynamic test performance.

Performance Composite

Stereolithography (SLA)

GET HIGHER RESOLUTION PIV RESULTS FASTER FOR IMPROVED PRODUCTIVITY

The workflow to produce wind tunnel parts in other currently available materials often requires a multi-step process to achieve a suitable finish required for wind tunnel testing. With its high contrast, the unique color of Accura Composite PIV provides the possibility to eliminate some of these steps and therefore compress the workflow for efficiency and throughput gains. In addition the improved finish and the reflection mitigating properties of this SLA material lead to higher resolution PIV test results enabling better informed decisions.

For more information on the material, visit <http://infocenter.3dsystems.com/materials/material-library/sla/accura-composite-piv>

FEATURES

- High contrast, reflection mitigating color
- Extremely strong, 72 MPa tensile strength (ISO method)
- High stiffness parts, 10200 MPa flex modulus, 9500 MPa tensile modulus (ISO method)
- 100°C heat deflection temperature after thermal curing
- Excellent accuracy

BENEFITS

- Higher resolution PIV data leading to better informed decisions
- Better contrast of unique color reduces post-processing steps and shortens preparation time
- Faster aerodynamic design iteration
- High print speed, productivity, and efficiency
- Improved wind tunnel economics

APPLICATIONS

- Airflow analysis for aerodynamic design optimization
- Airflow testing using PIV wind tunnel environment
- Pressure tapping in wind tunnel
- Electrically insulating enclosures
- Jigs, fixtures, and tooling
- Heat resistant applications
- Abrasion-resistant structures

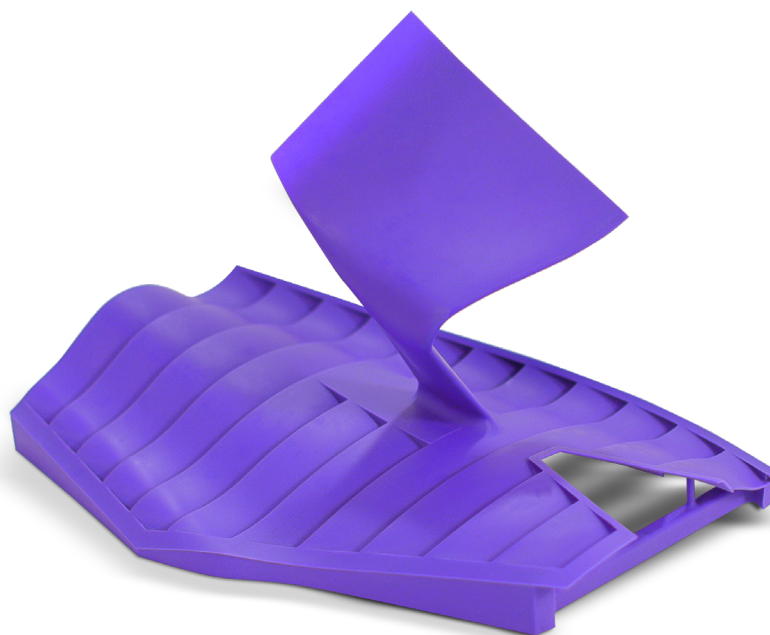
Note: Not all products and materials are available in all countries — please consult your local sales representative for availability.

MATERIAL PROPERTIES

The full suite of mechanical properties are given per ASTM and ISO standards where applicable. All parts are conditioned per ASTM recommended standards for a minimum of 40hrs at 23°C, 50%RH.

LIQUID MATERIAL		
MEASUREMENT	CONDITION/METHOD	VALUE
Color		Purple
Package Volume		10 kg bottle

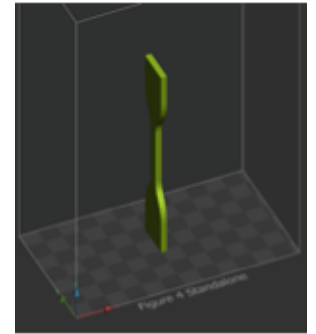
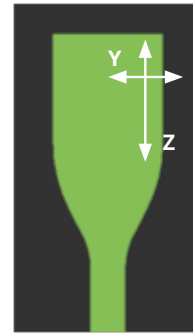
SOLID MATERIAL						
METRIC	ASTM METHOD	METRIC	ENGLISH	ISO METHOD	METRIC	ENGLISH
MECHANICAL				MECHANICAL		
Tensile Strength at Yield	ASTM D638 Type IV	72 MPa	10400 psi	ISO 527 -1/2	N/A	N/A
Tensile Modulus	ASTM D638 Type IV	9300 MPa	1350 ksi	ISO 527 -1/2	9500 MPa	1380 ksi
Elongation at Break	ASTM D638 Type IV	1.2%	1.2%	ISO 527 -1/2	1 %	1 %
Elongation at Yield	ASTM D638 Type IV	1.2%	1.2%	ISO 527 -1/2	N/A	N/A
Flex Strength	ASTM D790	142 MPa	21000 psi	ISO 178	140 MPa	20000 psi
Flex Modulus	ASTM D790	9900 MPa	1400 ksi	ISO 178	10200 MPa	1480 ksi
Izod Notched Impact	ASTM D256	13 J/m	0.25 ft-lb/in	ISO 180-A	2.8 J/m ²	1.3 ft-lb/in ²
Izod Unnotched Impact	ASTM D4812			ISO 180-U	4.8 J/m ²	2.3 ft-lb/in ²
Shore Hardness	ASTM D2240	91D	D	ISO 7619	91D	D
THERMAL				THERMAL		
Tg (DMA, E")	ASTM E1640 (E"Peak)	62 °C	143 °F	ISO 6721-1/11 (E"PEAK)	62 °C	143 °F
HDT @ 0.455 MPa/66 PSI	ASTM D648	72 °C	162 °F	ISO 75- 1/2 B	72 °C	162 °F
HDT @ 1.82 MPa/264 PSI	ASTM D648	59 °C	138 °F	ISO 75-1/2 A	60 °C	140 °F
CTE below Tg	ASTM E831	29 ppm/°C	16 ppm/°F	ISO 11359-2	29 ppm/°C	16 ppm/°F
CTE above Tg	ASTM E831	77 ppm/°C	42 ppm/°F	ISO 11359-2	77 ppm/°C	42 ppm/°F



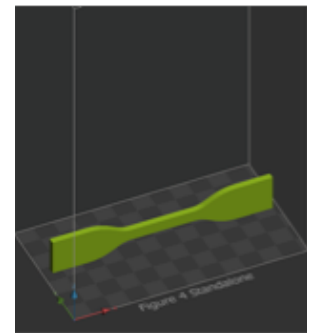
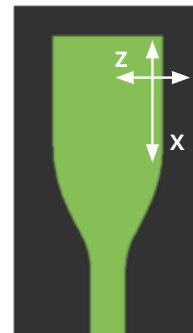
ISOTROPIC PROPERTIES

3D Systems' stereolithography technology produces parts that are generally isotropic in mechanical properties, meaning parts printed along either the XYZ axis will give similar results. Parts do not need to be oriented in a particular direction to achieve the highest mechanical properties, improving print freedom to maximize productivity.

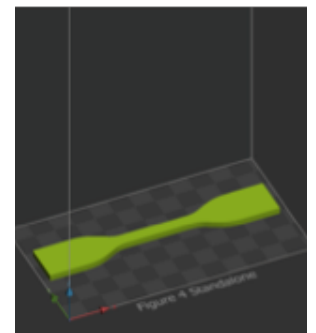
SOLID MATERIAL							
METRIC	METHOD	METRIC					
MECHANICAL							
		ZY	XZ	YX	YZ	45XY	135
Tensile Strength Ultimate	ASTM D638 Type IV	67 MPa	64 MPa	78 MPa	61 MPa	58 MPa	74 MPa
Tensile Strength at Yield	ASTM D638 Type IV	67 MPa	63 MPa	78 MPa	61 MPa	58 MPa	74 MPa
Tensile Modulus	ASTM D638 Type IV	9000 MPa	9500 MPa	9300 MPa	10000 MPa	10000 MPa	9300 MPa
Elongation at Break	ASTM D638 Type IV	1%	1%	1.5%	1%	1%	1.4%
Elongation at Yield	ASTM D638 Type IV	N/A	N/A	N/A	N/A	N/A	N/A
Flex Strength	ASTM D790	75 MPa	82 MPa	81 MPa	82 MPa	86 MPa	61 MPa
Flex Modulus	ASTM D790	9000 MPa	8700 MPa	10100 MPa	8500 MPa	10500 MPa	9200 MPa
Izod Notched Impact	ASTM D256	14 J/m	15 J/m	15 J/m	16 J/m	15 J/m	15 J/m
Shore Hardness	ASTM D2240	90D	90D	90D	90D	89D	80D



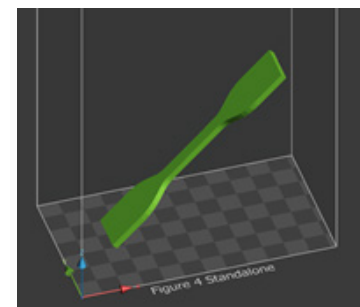
ZY - orientation



XZ - orientation



YX - orientation



Z45-Degree - orientation