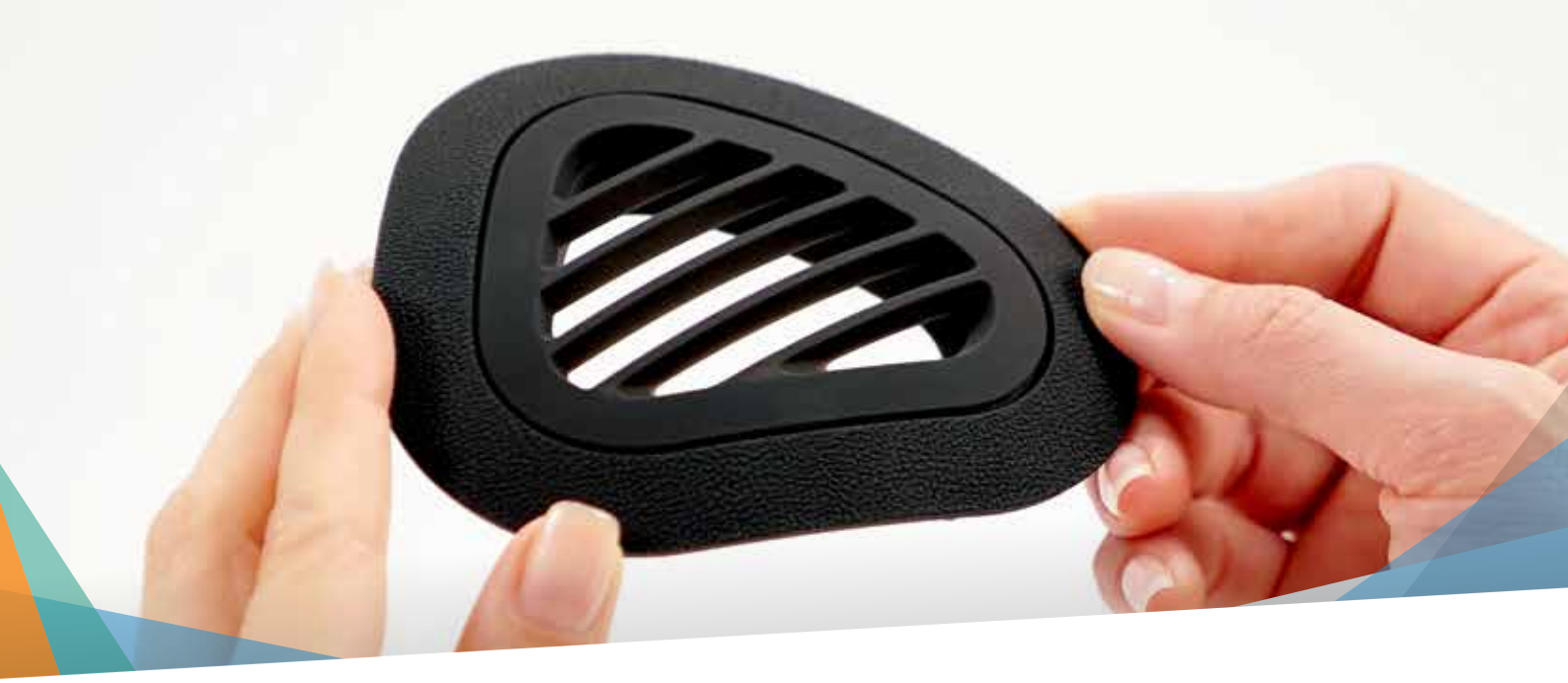


Figure 4™ PRO-BLK 10

Production Rigid

Figure 4®

Production-grade additive manufacturing material with game-changing thermoplastic-like mechanical properties and long-term environmental stability

VERSATILE RIGID HEAT RESISTANT MATERIAL COMBINES SPEED, STRENGTH, EXCELLENT MECHANICAL PROPERTIES FOR TOOL-LESS, DIRECT PRODUCTION OF PLASTIC PARTS

Figure 4 PRO-BLK 10 delivers on the promise of additive manufacturing with true direct digital production of plastic parts. Go from CAD to manufacturing line in one day with tool-less, same day part production. With a fast print speed and simplified post-processing that includes a single curing cycle and single solvent cleaning, this material delivers exceptional throughput. It is a high precision resin producing parts with a smooth surface finish and sidewall quality, and has excellent mechanical properties and long-term environmental stability that brings a new level of assurance to 3D production.

Liquid Material

MEASUREMENT	CONDITION	METRIC	U.S.
Viscosity	@ 25 °C (77 °F)	293 cps	709 lb/ft-hr
Color		Black	
Liquid Density	@ 25 °C (77 °F)	1.07 g/cm^3	0.039 lb/in^3
Package Volume		1 kg bottle - Figure 4 Standalone 2.5 kg cartridge - Figure 4 Modular 10 kg container - Figure 4 Production	
Layer Thickness (Standard Mode)		0.05 mm	0.02 in
Vertical Build Speed Standard Mode Draft Mode		 62 mm/hr 81 mm/hr	 2.4 in/hr 3.2 in/hr

APPLICATIONS

- Tool-less, same day production
- Direct production of small black plastic parts; examples include: motor housings, connectors, snap-fits, automotive interior and other general-use parts
- Digital production to replace injection molding or soft tooling processes

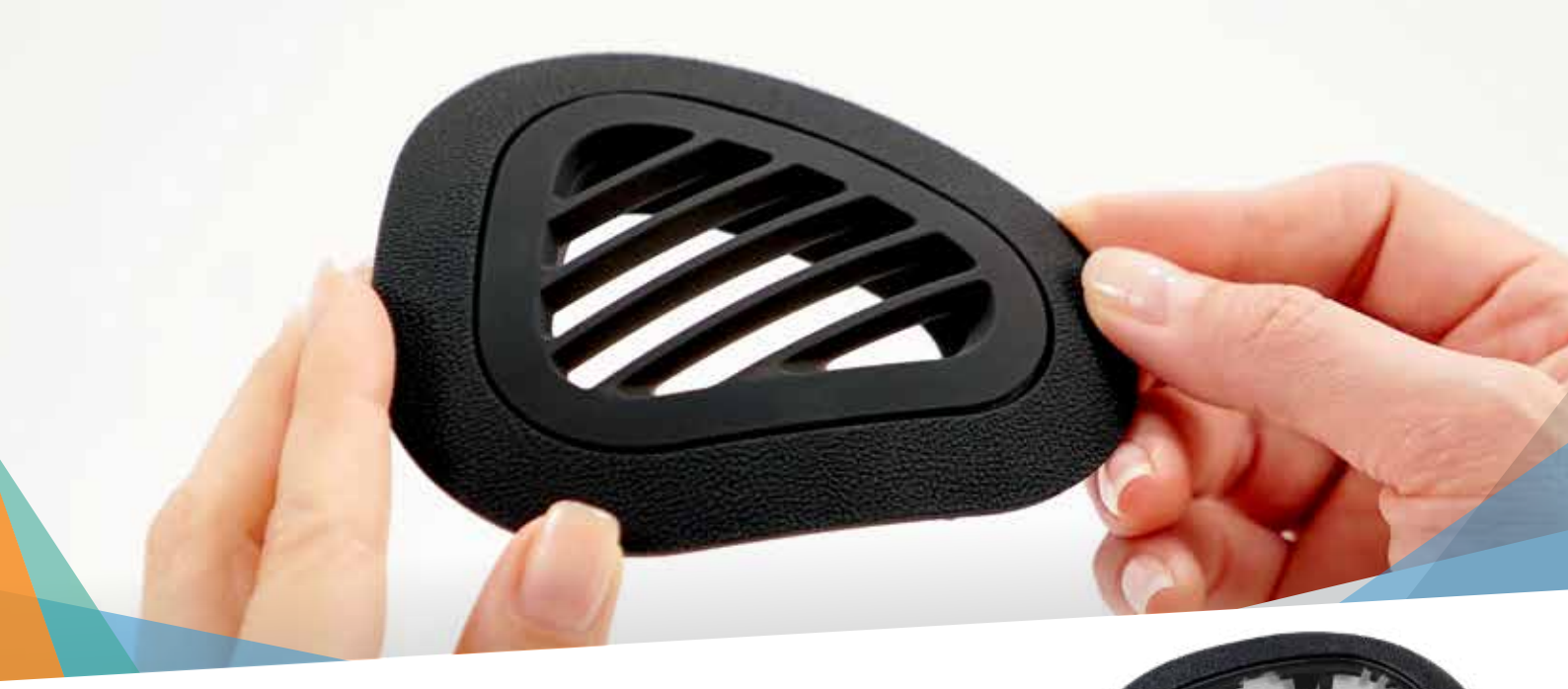
BENEFITS

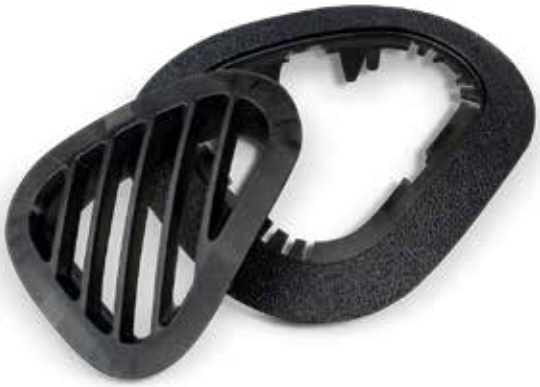
- Improved environmental stability of mechanical and performance properties over time
- Fast throughput for part-in-hand with no secondary thermal cure required
- Simple, single solvent cleaning
- Excellent surface quality and repeatability
- Accurate, low distortion material for fast first article print success

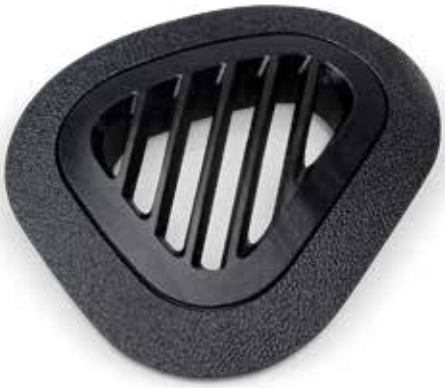
FEATURES

- Fast print speed up to 62 mm/hr at 50 micron layer thickness
- 70 °C heat deflection temperature, 12% elongation at break
- Durability and strength

3D SYSTEMS®







Post-Cured Material

MECHANICAL PROPERTIES			
MEASUREMENT	**CONDITION**	**METRIC**	**U.S.**
Solid Density (g/cm³ | lb/in³)	ASTM D792	1.16	0.042
Tensile Strength, Ultimate (MPa | PSI)	ASTM D412	63	9140
Tensile Strength, at Yield (MPa | PSI)	ASTM D412	63	9140
Tensile Modulus (MPa | KSI)	ASTM D412	2320	336
Elongation at Break	ASTM D412	12%	
Elongation at Yield	ASTM D412	4.7%	
Flexural Strength (MPa | PSI)	ASTM D790	92	13340
Flexural Modulus (MPa | KSI)	ASTM D790	2290	332
Notched Izod Impact Strength (J/m | Ft-lbs/in)	ASTM D256	24	0.5
Unnotched Izod Impact Strength (J/m | Ft-lbs/in)	ASTM D4812	614	11.5
Glass Transition (Tg), DMA, E"	ASTM E1640	62 °C	144 °F
Heat Deflection Temperature @ 0.45 MPa (66 PSI) @ 1.82 MPa (264 PSI)	ASTM D648	 70 °C 56 °C	 158 °F 133 °F
Coefficient of Thermal Expansion (CTE) (ppm/°C | ppm/°F) < Tg > Tg	ASTM E831	 71 188	 39 104
Hardness, Shore	ASTM D2240	79D	
Water Absorption (24 hour)	ASTM D570	1.16%	

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

middle east
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