

SLCOM 1

Let us
print your
part!¹

Selective Lamination Composites Object Manufacturing

EnvisionTEC's SLCOM 1 is the first and only industrial thermoplastic reinforced woven composite 3D printer on the market today. With a build envelope of 30" x 24" x 24", the new SLCOM 1 employs a new patent pending process known as Selective Lamination Composite Object Manufacturing.

The SLCOM 1 is available with a wide range of custom made thermoplastic reinforced unidirectional or multidirectional woven fibers tailored to the customer performance needs. These composite matrix materials deliver high quality 3D printed parts suitable for use in aerospace, automotive, consumer products, sporting goods, and potential applications in the medical space.

Machine Properties ²	SLCOM 1
Build Envelope	30" x 24" x 24"
Accuracy	+/- 100 µm in X and Y One layer thickness in Z after lamination
Cutting Speed	Up to 20 inches per second linear speed
Min/Max Layer Thickness	0.1 mm to 1.0 mm (prior to lamination)
Build Speed	Post lamination layer thickness dependent
Material	UNI and bidirectional thermoplastic pre-pregs
Cutting Gantry	4 Full AXIS cutting gantry system (XYZR)
Footprint	125"H x 156" W x 94" D

System Properties

- Build solid parts using layer-by-layer laminated thermoplastic composite fabric sheets from a roll
- Unique material storage feed concept
- 48" x 48" XYZ cutter range with 30 kHz ultrasonic blade cutter
- Automatic blade replacement with blade wearing auto detection
- Automatic anti-lamination fluid application
- Waste material not fully laminated to build, reducing post-processing
- Process continuous fiber-reinforced thermoplastic pre-pregs for use in lightweight structural applications
- Composite materials can be tailored for:
 - Exceptional toughness
 - Environmental resistance
 - Vibration dampening
 - Low flammability characteristics
 - High wear resistance
 - Radiolucency/x-ray transparency

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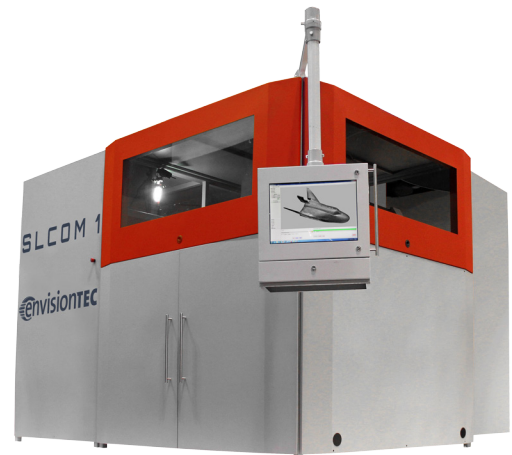
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The following is a list of common polymer matrices that can be combined with fiber reinforcements in multiple configurations to run on the SLCOM 1 System.

Matric Polymer	Nominal Processing Temp °C/°F	Tg °C/°F	Polymer Structure	Continuous Use Temp °C/°F
Polyetheretherketone (Peek)	385/725	143/290	Semi-crystalline	250/480
Polyetherimide (PEI)	320/610	215/420	Amorphous	200/390
Polyphenylene Sulfide (PPS)	330/625	90/195	Semi-crystalline	220/430
Polypropylene (PP)	190/375	-10/-14	Semi-crystalline	90/194
Polyethylene (PE)	175/350	-125/-195	Semi-crystalline	70/160
Polycarbonate (PC)	295/565	150/302	Amorphous	130/265
Polyethylene terephthalate (PET)	290/555	75/165	Semi-crystalline	130/265
Polyether Sulfone (PES)	290/555	225/435	Amorphous	180/355
Polyamides (Nylon) (PA 12, PA 11, PA 6.10, PA 6, PA 4.1)	190-220 /375-430	40-60 /105-140	Semi-crystalline	120/250
Polyetherketoneketone (PEKK)	355/670	156/315	Semi-crystalline	230/445

Some examples of fiber reinforcements that can be combined with polymer matrices include, but are not limited to:

- Carbon Fiber
- Fiberglass
- Aramid Fiber (i.e. Kevlar)
- PBO (i.e. Zylon), along with metal fibers like steel, aluminum or titanium



Patents Pending

¹ Learn more at EnvisionTEC.com/printmypart

² Specifications are subject to change without notice