

TECHNOLOGIES TYPICALLY CONSIDERED APPROPRIATE FOR USE AS LOW-COST 3D PRINTERS ARE SHOWN WITH THIS BACKGROUND COLOR.

Technology >>	Stereo-lithography	Jetted Photopolymer	Selective Laser Sintering	Single Jet Inkjet	Laminated Object Manufacturing	Fused Deposition Modeling	Three Dimensional Printing
Acronym >>	SLA	J-P	SLS	MM	LOM	FDM	3DP
Representative Vendor >>	3D Systems		EOS GmbH	Solidshape	Solidimension [sold in US by 3D Systems]	Stratasys	Z Corp.

General Qualitative Features - - - -

Maximum Build Chamber (inches)	20 x 20 x 24	11.75 x 7.3 x 8	27.5 x 15 x 23	12 x 6 x 9	6.29 x 8.26 x 5.31	24 x 20 x 24	20 x 24 x 16
Speed	average	good	average to good	poor	good	poor	excellent
Accuracy	very good	good to very good	good	excellent	fair	fair	fair
Surface Finish	very good	good to very good	good to very good	excellent	fair	fair	fair
Strengths	large part size, accuracy	accuracy and finish, office OK	accuracy, materials,	accuracy, finish, office OK	office OK, price, size	office OK price, materials	speed, office OK, price, color
Weaknesses	post processing, messy liquids	size and weight, post processing	size and weight, system price, surface finish	speed, limited materials, part size	limited materials, finish and accuracy	speed	limited materials, fragile parts, finish
Typical Applications >>	<ul style="list-style-type: none"> • Very detailed parts and models for fit & form testing • Rapid manufacturing of small detailed parts • Fabrication of specialized manufacturing tools • Patterns for investment casting 	<ul style="list-style-type: none"> • Very detailed parts and models for fit & form testing • Patterns for investment casting, especially jewelry and fine items 	<ul style="list-style-type: none"> • Slightly less detailed parts and models for fit & form testing compared to photopolymer-based methods using engineering plastics • larger items such as air ducts • Parts with snap-fits & living hinges • Patterns for investment casting 	<ul style="list-style-type: none"> • Most detailed parts and models available using additive technologies for fit & form testing • Patterns for investment casting, especially jewelry and fine items, especially medical devices 	<ul style="list-style-type: none"> • Somewhat less detailed parts and models for fit & form testing compared to other methods • Patterns for urethane & RTV molding • Larger patterns for sand-casting 	<ul style="list-style-type: none"> • Detailed parts and models for fit & form testing using engrg plastics • Detailed parts for patient- and food-contacting apps • Plastic parts for higher-temperature applications • Patterns for investment casting • Fabrication of specialized manufacturing tools 	<ul style="list-style-type: none"> • Concept models • Parts for limited functional testing • Color models for FEA and other engineering related applications • Architectural & landscape models • Color industrial design models, especially consumer goods & packaging

System Price Range	\$75K-800K	\$40K-85K	\$200K-1M+	\$70K-80K	\$15K-240K	\$19K-300K	\$20K-70K
Materials - - - -							
Available properties & characteristics include >>	<ul style="list-style-type: none"> •Acrylics (fair selection) •Clear and rigid •ABS-like •PP-like •Flexible or elastomeric •Water-resistant 	<ul style="list-style-type: none"> •Acrylics (limited selection) •Elastomeric 	<ul style="list-style-type: none"> •Nylon, (also filled) providing higher strength •Polystyrene (PS) •Elastomeric •Steel and S/S •Bronze alloy •Cobalt-chrome •Titanium 	<ul style="list-style-type: none"> •Polyester-based plastic •Investment casting wax 	<ul style="list-style-type: none"> •Bonded PVC-based plastic film •Bonded paper 	<ul style="list-style-type: none"> •ABS •Polycarbonate (PC) •PPS •Elastomer 	<ul style="list-style-type: none"> •Bonded plaster / plaster composite •Elastomeric •Investment & direct casting
Material Costs \$/pound							
plastics	\$75-110	\$60-200	\$25-60	\$100	\$18	\$115-185	
metal			\$35-115				
other			\$5 (foundry sand)		\$5-8 (paper)		starch: \$0.35 / cu in plaster: \$0.60 / cu in + infiltrant
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Source: Castle Island's Worldwide Guide to Rapid Prototyping
http://home.att.net/~castleisland/rp_int1.htm