

AM Standardized process category	Commercial definition	Recommended Min. Wall Thickness	Recommended Min. Details	Typical Max. Build volume	Typical Material capabilities	Typical Use	Comments
Binder Jetting	Three Dimensional Printing (3DP)	1.5 to 2 mm	0.8 mm	340 x 240 x 200 mm	C (19)	RP	Excellent for demonstration models with color printing.
	Voxeljet (Sand Casting)	1 mm	0.8 to 1 mm	4000 x 2000 x 1000 mm	S (20)	RT	Typical use for manufacturing of castings molds
	Binding and sintering processes	1 mm	0.8 to 1 mm	762 x 393 x 393 mm	M (13,14, 15, 16, 17, 18)	RM	A process in which a powder bed is binded layer by layer and then sintered in a oven for end use applications
Direct Energy Deposition	Laser-Engineered Net Shaping (LENS)	1 mm	0.5 mm	900 x 1500 x 900mm	M (13,14, 15, 16, 17, 18)	RT, RM	Production of tooling, hybrid manufacturing, reverse engineering and repair medical and aeronautic applications
Material Extrusion	Fused Deposition Modeling (FDM)	1 mm	0.3 mm	400 x 355 x 400 mm	P (1, 2, 3, 4, 5, 6)	RP, RM	Ideal for Conceptual models, Engineering models, and Functional testing prototypes
Material Jetting	Polyjet	1 mm	0.2 to 0.3 mm	500 x 400 x 200mm	P (7, 8, 9, 10, 11, 12)	RP	Multimaterial printing possibilities (Connex series machines)
	Multijet Modeling (MJM)	0.7 mm	0.2 mm	150 x 150 x 150 mm	P (7, 8, 9, 10, 11, 12)	RP	Models with color printing, hard plastic or cast-friendly wax parts. Applications ranging from concept models to RM
Powder Bed Fusion	Selective Laser Sintering (SLS)	0.7 to 1 mm	0.5 mm	650 x 330 x 560 mm	P (2)	RP, RM	Ideal for durable, functional parts, capable of producing snap fits and living hinges
	Direct Metal Laser Sintering (DMLS)	0.3 mm	0.127 mm	400 x 400 x 400 mm	M (13,14, 15, 16, 17, 18)		Industrial demanding applications, for automotive, aeronautics, engineering, medical and dental engineering
	Selective Laser Melting (SLM)	0.3 mm	0.180 mm	500 x 280 x 325 mm	M (13,14, 15, 16, 17, 18)	RM	Industrial demanding applications, for automotive, aeronautics, engineering, medical and dental engineering
	Electron Beam Melting (EBM)	1 mm	0.3 mm	Ø350 x 380 mm	M (16,17,18)	RM	Industrial demanding application, for orthopedic implants and aerospace applications
	Selective Heat Sintering (SHS)	1 mm	N/A	200 x 157 x 140 mm	P (2)	RP	Functional samples of prototypes for tests and use in practice, before putting the final product into production.
Sheet Lamination	Laminated Object Manufacturing (LOM)	1 mm	0.205 mm	812 x 559 x 508 mm	SM (21)	RP, RT	Form/fit testing, Less detailed parts and tooling patterns
Vat Photopolymerization	Stereolithography (SLA)	1 mm	0.3 mm	2100 x 700 x 800 mm	P (7, 8, 9, 10, 11, 12)	RP, RT, RM	Demo models, accurate models and models with limited functionality.
	Digital Light Processing (DLP)	1 mm	0.5 mm	192 x 120 x 230 mm	P (7, 8, 9, 10, 11, 12)	RP, RT	prototyping and investment casting or lost wax casting application

P - Plastics	Thermoplastic materials	ABS	1
		Polyamide	2
		PLA	3
		PC	4
		Ultem	5
		Thermoplastic blends (PC-ABS, Bio PLA, etc...)	6
	Thermoset photopolymers	High detail resin	7
		Transparent resin	8
		Coloured plastics	9
		Rubber-like	10
		ABS-like	11
		PP-like	12
M - Metals	Ferrous materials	Stainless steel	13
		Maraging Steel (tool steels)	14
	Non-Ferrous materials	Aluminum Alloy	15
		Titanium Alloys	16
		CoCr Alloys	17
		Nickel Alloys (Inconel)	18
C - Ceramics	aluminum oxides	19	
S - Sand casting	SiO2	20	
SM - Sheet Materials		21	

Rapid Prototyping (RP):

AM of a design, often iterative, for form, fit, or functional testing, or combination thereof.

Rapid Tooling (RT):

The use of AM to make tools, either directly, by making parts that serve as the actual tools or tooling components, such as mold inserts. Or indirectly, by producing patterns that are used in a secondary process to produce the actual tools.

Rapid Manufacturing (RM):

The use of AM for direct part production to be used in end applications.