

Additive Processes

Mechanical Engineering

Four printing families, what each part is really good for, and its weakness.

Layer direction is a design variable, not a machine setting.

Process	Strength	Best use
Filament, FDM	Weak across the layers	Fixtures, form models
Resin, SLA or DLP	Brittle, very fine detail	Patterns, visual models
Nylon, SLS	Close to isotropic	Functional prototypes
Metal powder bed	Near wrought once treated	Flow parts and brackets

Pull a load across the layers and a printed part fails early. Orient the part to the load, not the bed.