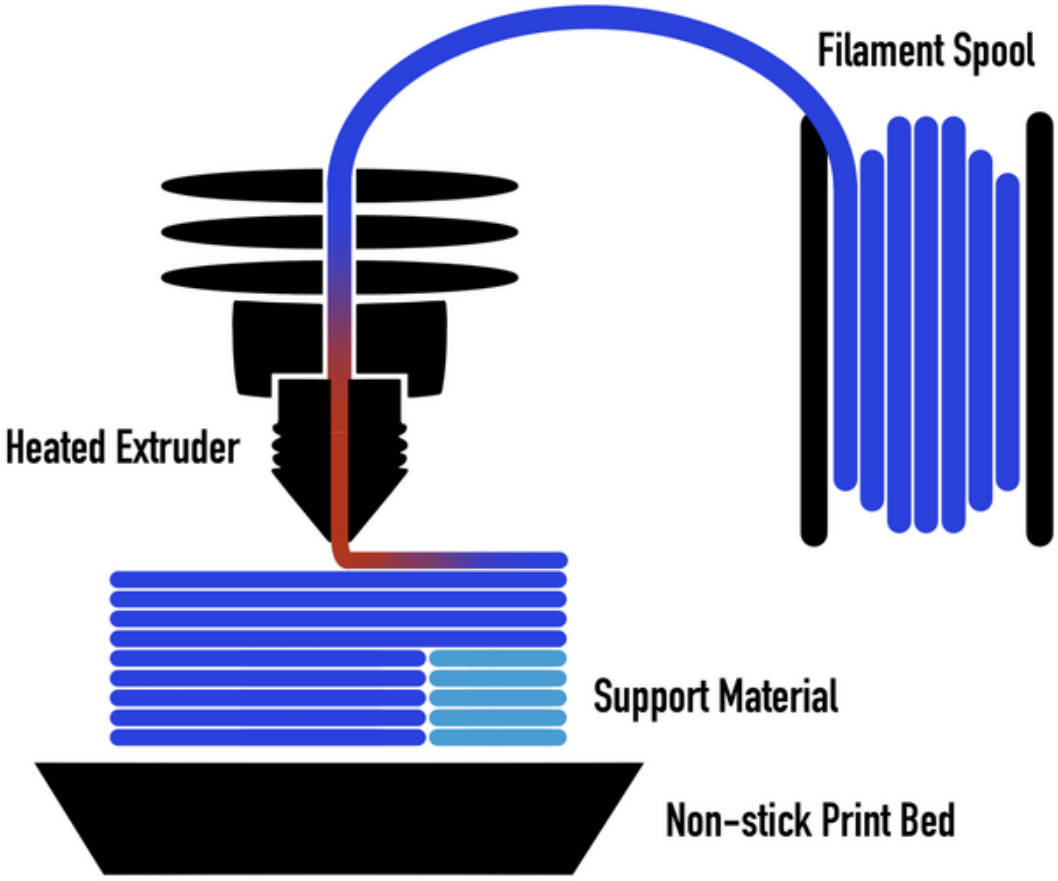
Introduction to Fused Deposition Modeling (FDM)



The Process

Fused Deposition Modeling (FDM) is an additive manufacturing process where an object is formed by extruding melted material in a pre-determined path layer by layer. The process is as follows:

1. A computer program “slices” a 3D object into hundreds of thin cross sections.
2. The 3D printer accepts the sliced 3D model and begins heating a metal nozzle.
3. A long strand of thermoplastic is fed into the hot nozzle by a system of gears.
4. The nozzle is displaced horizontally by two belts to deposit the melted filament onto a build platform in a pattern that corresponds to a single layer of the sliced model.
5. The build platform and the deposited plastic layer lowers by a fraction of a millimeter.
6. The nozzle prints the next layer.

This continues until every layer has been deposited and the model is complete. The process can take anywhere from 30 minutes to multiple days depending on the size and resolution of the object. An average print in the Fabrication Farm takes 3 hours of operating time on a machine.

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