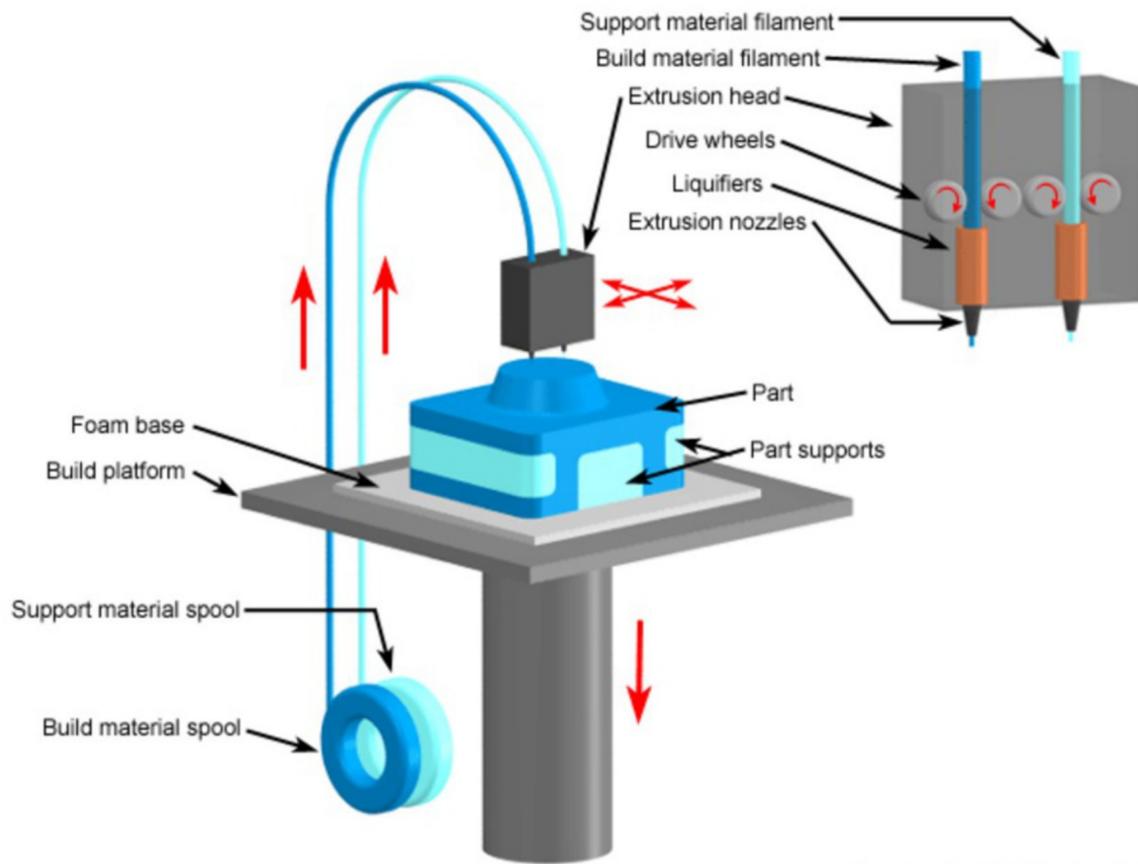


# FDM - Fused Deposition Modelling



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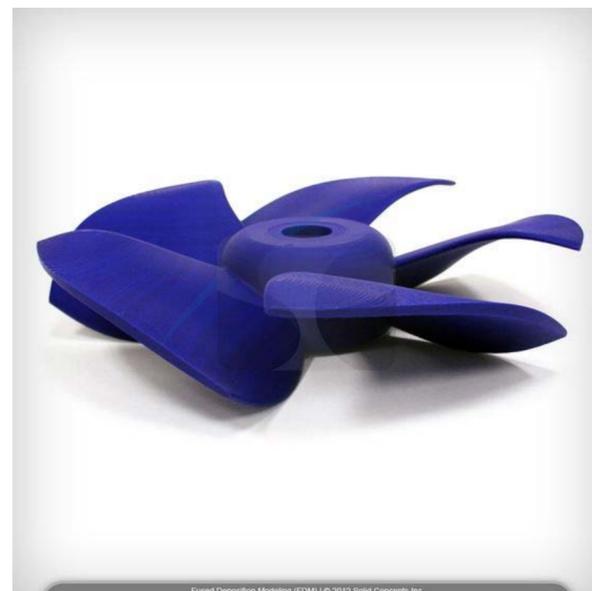
## Materials

- The most used materials are ABS and PLA. They are available in a variety of colours and also as compounds with special characteristics, e.g. metallic or glow-in-the-dark effects.
- There are variety of soluble support materials such as PVA, HIPS,..
- New classes of materials released almost weekly include flexible, heat resistant, or chemical resistant versions of PLA or ABS as well as materials simulating the characteristics of common polymers like PA,PC or PET.

Advantages	Disadvantages
Low cost Parts can be strong Large choice of materials	Higher tolerances Limitations in geometric complexity Rough surface finish

## Applications

- Very low cost makes it particularly interesting for home and hobby applications, where someone could accept the rough surface finish.
- Model making or creation of spare parts for older devices.
- Particularly good for producing high strength prototypes when you don't care about perfectly detailed surfaces. Gives a quick and cheap physical representation of the design for initial evaluations.
- Professional FDM printers offer very tight tolerances, however, due to the long printing times, the technology does not offer any cost advantage over other professional 3D printing technologies, such as SLA, Polyjet or Laser Sintering.



## Costs

- The driving cost factor in the FDM/FFF technology is the printing time, which can be easily one day or more for larger objects.
- Materials are produced at large scale and are therefore cheaper than resins in the SLA or Polyjet technology.
- Support structures can increase material consumption significantly.
- Solid volumes are normally not printed solid, but with a stabilizing structure (normally between 20 and 25 % infill). This increases printing speed and reduces material consumption.



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