

# ZCorp Spectrum Z510 3D Printer

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- **Part Material:** Printed parts consist of porous plaster that can be infiltrated with epoxy
  - **Cost:** Consumables for this machine cost approximately \$5/in<sup>3</sup>
  - **Build Speed:** 2 layers per minute
  - **Max Part Size:** 10" x 14" x 8" (254 x 356 x 203 mm)
  - **Layer Thickness:** User selectable at the time of printing; 0.0035"-0.008" (.089-.203 mm)
  - **Print Resolution:** 600 x 540 dpi
  - **File Formats:** Accepts solid models in STL, VRML PLY, and 3DS file formats as input
  - **Wall Thickness:** Completed parts are made of dried plaster. After they are depowdered, they can be infiltrated with epoxy. Thicker walls are always preferred, but an absolute minimum wall thickness of 1/16" (~1.5mm) is recommended.
  - **Clearance Between Mating Parts:** Assemblies of parts can be printed, but you must be able to remove loose powder from between the parts. A minimum clearance of about 1/16" is recommended.
  - **Color:** Color parts can be 3D printed with this machine. To do this, use any appropriate technique to produce a selectively colored part in your CAD package. You can selectively color faces, you can conduct a finite element study, etc. Export the color part to the VRML format. The ZCorp machine is able to extract color information contained within the VRML format.
  - **Finishing:** Finished parts can be vacuum infiltrated with epoxy to improve strength and color appearance. The infiltrated parts can also be sanded smooth and coated with a high gloss spray to provide a shiny finish if desired.
  - **Tolerance:** It's nearly impossible to specify a tolerance for this process since it varies depending on factors such as the orientation the parts are built in and even the condition of the powder. This is a prototyping process, not a production manufacturing process.
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# Dimension Elite 3D Printer

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- **Part Material:** ABS plastic
- **Cost:** Consumables for this machine cost approximately \$15/in<sup>3</sup>
- **Build Speed:** Slow! Depends on the area within each layer.
- **Max Part Size:** 8" x 8" x 12" (203 x 203 x 305 mm)
- **Layer Thickness:** User selectable at the time of printing; 0.007" or 0.010" (.178 or .254 mm)
- **File Formats:** Accepts solid models in STL file format as input
- **Wall Thickness:** Thicker walls are always preferred, but an absolute minimum wall thickness of 0.050" (~1.25mm) is recommended. Part quality at these low wall thicknesses will not be good.
- **Clearance Between Mating Parts:** A clearance of about 0.005" (0.125mm) between mating surfaces will produce a loose sliding fit. A clearance of about 0.001" (0.025mm) between mating surfaces will produce a snug friction fit.
- **Color:** Color parts can be produced with this machine provided the entire part is the same color. We typically have ABS cartridges in natural (off white), black, blue, red, and yellow. Orange is sometimes available.
- **Finishing:** Finished parts are not water or gas tight. Infiltration isn't normally done unless necessary to seal the pores.
- **Tolerance:** It's nearly impossible to specify a tolerance for this process since it varies depending on factors such as the orientation the parts are built in. This is a prototyping process, not a production manufacturing process.