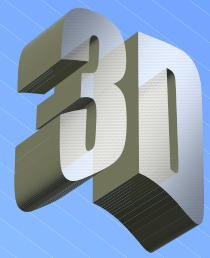
An Introduction to Printing in 3D with the ZCorp Z310 Rapid Prototyping Printer



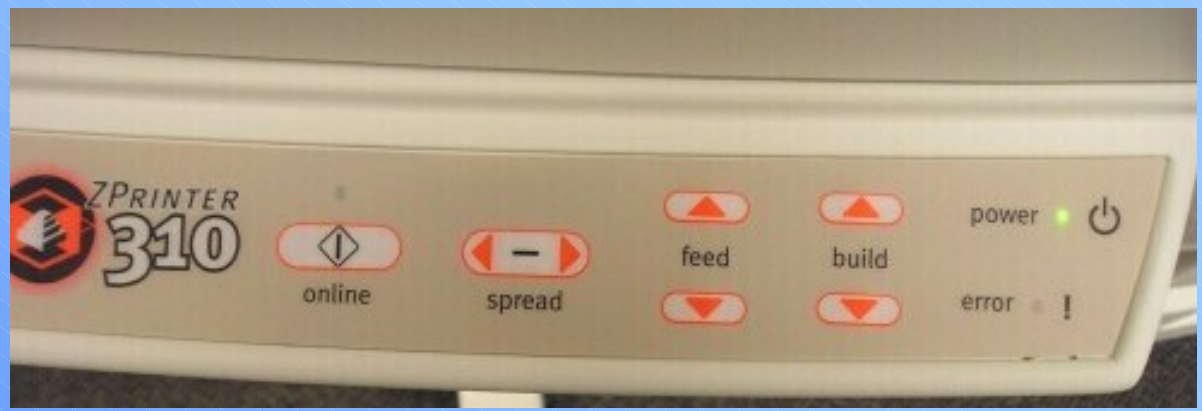
Zcorp Model 310 Printer Facts

- Creates 3D models quickly from digital data.
- Cost $31,000 with tax.
- Uses a HP inkjet printer printhead.
- Prints a binder onto plaster powder.
- Creates layers 0.004 inches thick.
- Costs about $1.50 per cubic inch of material.
- Can create models up to 8” x 10” x 8”.
- Files must be in STL, VRML or PLY file formats as input.

The Z310 Printer and Cleaning Station

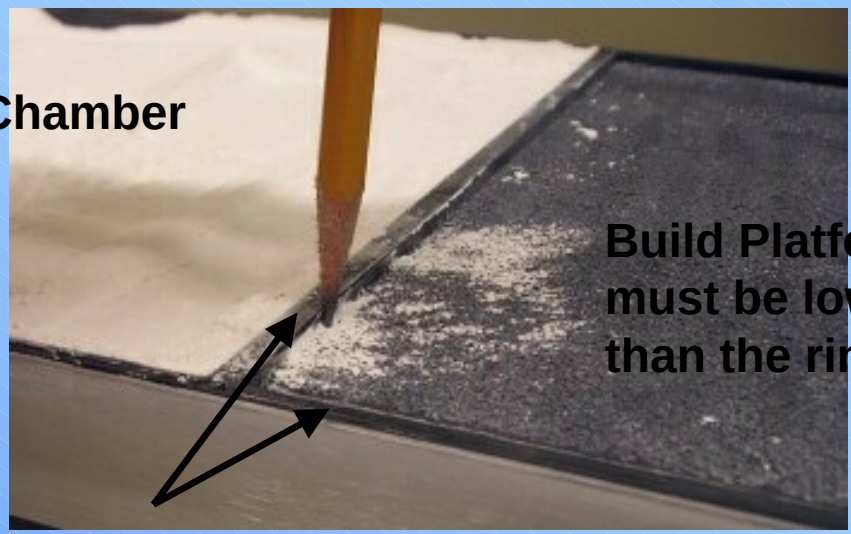
Printer Setup Continued

- Make sure there is enough powder in the feed chamber.
- Tamp down the powder to make it level and to remove air pockets.
- Raise the feed platform so the powder is near the top of the feed chamber.
- Use the controls to raise or lower the feed and build platform.



Setting Up The Printer

- Check that the build platform is lower than the top rim of the build chamber.
- This ensures the print mechanism does not hit the build platform as it moves.



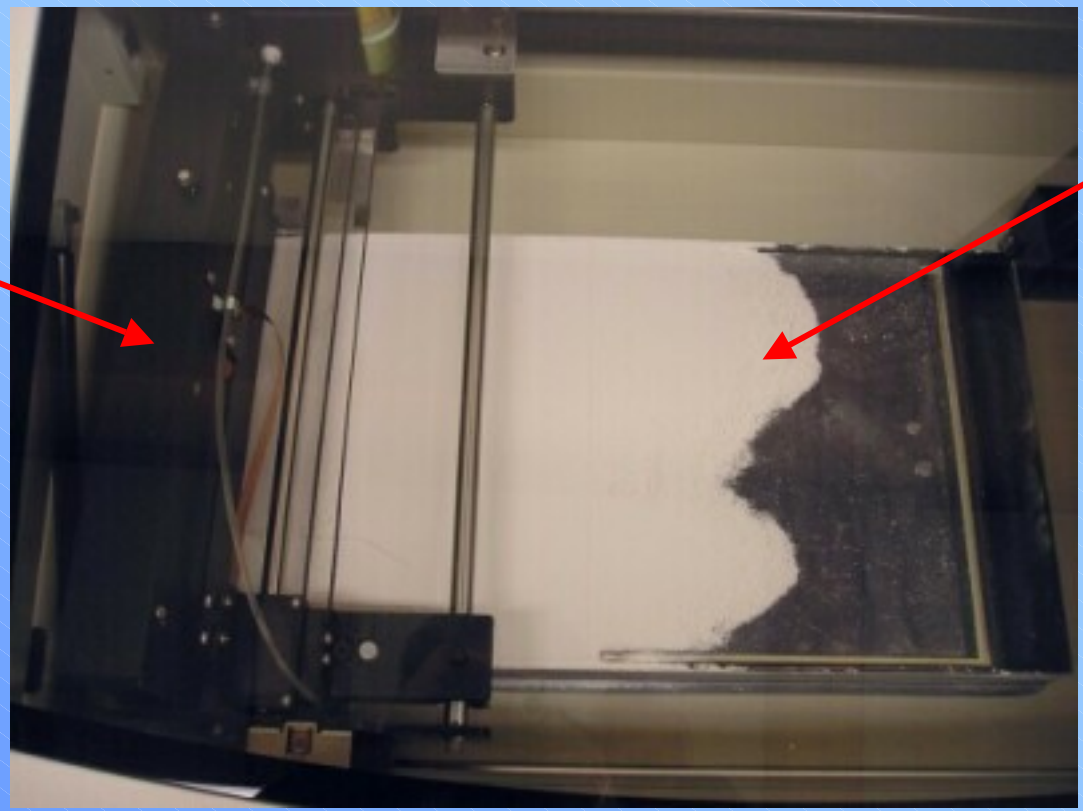
Printer Setup Continued

- Make sure there is binder in the binder jug.
- Make sure the overflow bucket is not full.
- Hold down the spread button for 4 seconds.

Printer Setup Continued

- You should see the print mechanism spread powder from the feed chamber to the build platform.
- You may have to repeat the spread process several times to get a smooth layer of powder on the build platform.

Print Mechanism



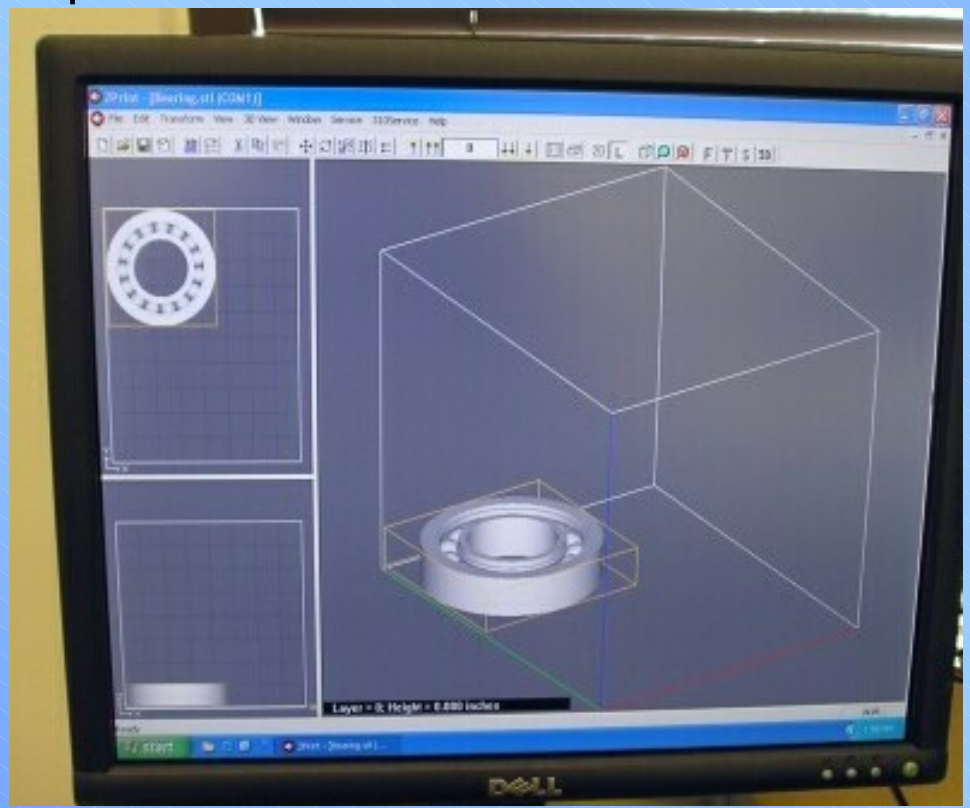
Here some powder has been spread onto the build platform.

Printer Setup Continued

- Once there is a smooth powder layer on the build platform, hit the Online button on the printer. A green LED should appear.
- Open the ZPrint 6.3 software on the attached computer.
- Select the file you want to print. It must be in STL, VRML or PLY format.

Printer Setup Continued

- Position the model by dragging the image in the top and front views.
- If it is too big, scale the model down with the *Scale* command under the *Transform* menu.
- Remember, $1.50 per cubic inch!!



Printer Setup Continued

- You can add more parts to be printed at the same time.
- Choose *Import* under the *File* menu to do this.
- You can also *Copy* and *Paste* to create multiple prints of a part.
- Under the *File* menu select *Print Time Estimator*.
- This shows how long it will take to print. Try arranging the parts to minimize print time.
- Select *3D Print* from the *File* menu to print.

Removing the 3D Model

- Once done printing, you should wait several hours for the binder to set. (Or bake the model in a 200 ^{o}F oven for two hours.)
- Then carefully dig out your model from the loose powder using the tools provided.
- Loose powder can be reused, so keep the loose powder off moving parts of the printer and free of dirt, hair or oil.
- Excess powder should be put back into the feed chamber or dumped into the overflow bucket or vacuumed up.
- Please leave the printer perfectly clean with no loose powder laying about.
- Carry the build platform or just your model over to the cleaning station.

Cleaning The Model

- Turn on the vacuum and plug in the compressor.
- Put on rubber gloves. The powder absorbs moisture and will dry out your hands.
- Carefully clean off the part with the compressed air and/or brushes.
- Note: The compressor is pretty weak. Use short bursts of air instead of continuous streams.

Strengthening The Model

- Bake in a 200 degree F oven for several hours.
- Infiltrate with a liquid that will harden.
- Wax, super glue, or various resins.
- Use the “lunch” tray for a work surface--please keep the drafting tables clean.

Resources

- The ZPrint software has an online manual under the *Help* menu.
- www.zcorp.com has more information.