DMaF Design Modelling and Fabrication Lab

3D Powder Print Induction

Z-CORP 310	Z- CORP 510
200 x 250 x 200mm $0.50 per 1cm3 + $10.00 Set up charge	250 x 355 x 200mm $0.50 per 1cm3 + $10.00 Set up charge

Payment must be made before commencement of print with Extro

Information regarding the machine dimensions of our machines can be found on http://sydney.edu.au/architecture/atsc/digfab/machines.html

Bookings

1. Booking must be made in person in DMaF.
2. Printing order and priority is determined by receipt of fully complete, "print ready" files + payment
3. Please note that file checking and repair often takes time so have your file prepared early and in advance. Powder printing is not ideal if you need a finished model by tomorrow morning.
4. Please always bring your original (Rhino) file as well as an .stl.
5. ZPrint and Zedit software are available in the Digital Fabrication Lab for checking files.

Checklist

1. Ensure all surfaces are 'joined' (type *join*) (no holes or gaps) and that you 'cap' all volumes (type *cap*). **The model must be 'watertight'.**
2. All surface normals must face outwards. Use the 'direction' command (type *DIR*) in Rhinoceros to check.
3. Ensure there are *no double surfaces*
4. **Exporting your file as an .stl**
    1. *Scale* to print size
    2. *Move* to origin (0,0)
    3. Select individual objects and *Export Selected*
    4. Save as type: *Stereolithography (.STL)*
    5. Select *0.01 accuracy*
    6. Save as *Binary*
7. Please always provide your original (Rhino) file as well as an .stl.

Useful Information

1. The recommended minimum wall thickness is 2mm. Tubular structures need minimum 3mm walls
2. The volume required determines print cost. Models that are hollow (and have loose powder escape route) will cost substantially less.
3. Payment must be made before job commencement via Extro

Booking Terms & Conditions

1. Printing order and priority is determined by the order of receipt of fully complete and "print ready" files + payment
2. DMaF Lab cannot guarantee same day printing or time sensitive printing. Prepare your files early!
3. A stand-by list is available during peak semester periods in DaMaf lab.

Maintenance *(to be completed by DMaF Lab staff or by individual induction only)*

Pre-Job Maintenance. DO NOT USE COMPRESSED AIR:

- Vacuum all excess powder. Check rails and always wipe.
- Press *Offline* > *Feed Down* to lower feed bed to bottom, then > *Feed Up* to raise bed a touch
- Fill LHS gently with powder. Level with shovel.
- Tamper with grid, until evenly packed. Close lid.
- *Spread* > *Feed Up* > *Spread* > *Feed Up* (or use autospread)
- Vacuum machine again
- Clean the service station.
    - Z310 – flush squeegees with demineralized water and dry with paper towel; rinse parking cap with demineralized water and dry with paper towel.
    - Z510 – use needle to gently unclog cleaning holes (remove whole piece from machine first so hardened powder pieces don't get pushed through and block the machine); rinse parking cap with demin water and dry; rinse rubber wiper and dry; wipe clean metal spit cover.
- Wipe all rails again before job commencement
- Close lid > *Online*

Post-Job Maintenance. DON NOT USE COMPRESSED AIR:

- Vacuum machine
- Wipe silver rail (slow axis) at rear
- Wipe bearing block end
- Wipe two rails (fast axis). DO NOT TOUCH RIBBON.

Sending through a job: *(to be completed by DMaF Lab staff or by individual induction only)*

- Import .stl files into zPrint to create ZBD
- Open file > 3D print set-up > select printer (serial port) > OK to choose correct build envelope
- Product type always ZP150 | Layer thickness 0.1mm | Do not change
- Bleed Compensation
    - OFF: drops binder on middle of printing path (default setting)
    - ON: offsets binder on inside of printing path (to be used for moving parts)
- Place model in bottom of Z axis
- Importing: check scaling | check units (mm) | ZP150 > Next
- 3D print time estimate > time > cm3
- Edit > Label > can raise or make negative. Positive works well, negative does not always work.
- 3D Print:
    - Check printer ; Check set-up
    - Print option > entire build > print log > detailed report > OK
    - IMPORTANT: You must stay connected to the printer for the whole job
- After removing your job, put on 50 degrees in oven to dry.