Dimond TrimSaw 2 Training SOP

Last edited: Furst (10/30/20)

Instructor:

Date:

Attendees:

	Name	Group or Company	Signature
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Overview:

- This training provides an introduction to using and operating the TrimSaw 2 diamond cutting saw including:
  - Blade Types
    - Metal cutting blades
    - Glass cutting blades
  - Fixtures
  - Safety
    - PPE for saw
    - Hazards
  - Saw use
  - Saw Maintenance
    - Coolant tank cleaning/refill
    - Blade Replacement
- The Trimsaw 2 uses 6 inch diamond blades to make fine cuts in metals, glass, ceramics and PCBs. Specific blades for each material are available and should be changed before cutting new material. A variety of fixtures and guides are available with custom fixtures available for specific jobs (contact Dave Bothman or a Workshop Wizard for custom tooling). Spinning up to 3000 RPM the bottom of the blade is submerged in coolant to lubricate and cool the blade while in the cut. A blade splash guard and plexiglass cover reduce the amount of lubricant thrown by the blade.

Safety

- Eye protection should be warn at all times while operating the saw
- All guards and shields should be in place before turning the saw on
- Hands should be kept free and out of the way of the blade at all times
- Nitral (NOT RUBBER OR CLOTH) gloves should be warn when cutting specific composites including carbon fiber and fiberglass

Job Setup

Switching Blades

- Remove the table to expose the reservoir and the saw blade arbor
- Insert the two pins into the saw arbor and blade retaining nut normal to the surface of the arbor
- Using the leverage on the pins, loosen the blade retaining nut to free the blade
- Carefully remove the blade from its arbor and replace with the blade matching the material you intend to cut (blades should be inspected for ware and cracks, damaged blades should be disposed of in the broken glass box)
- Lightly LUBRICATE the threads on the end of the blade arbor with a grease to prevent thread galling.
- Tighten the blade retaining nut HAND TIGHT (no need to go crazy on this one down)
- Insure the coolant level is in contact with the bottom of the blade and filled to the fill line
- Replace the table

Part fixturing
Several fixtures are available:

- Push Sled
- Clamp sled
- Custom fixturing
- fence

Using the TrimSaw 2:

- Check the blade installed, coolant levels and part material
- Select an appropriate fixturing jig to insure part remains securely held and square to the saw blade
- Adjust the blade splash guard so that it just clears the fixture and workpiece but catches as much coolant as possible
- Replace the plexiglass cover
- Turn on the TrimSaw and using the arrow buttons select the appropriate speed
- Slowly and gently feed the workpiece into the blade, allow the blade to cut without force feeding
- When cut is complete leave fixture and workpiece cut in place until saw completely stops spinning (do NOT attempt to clear workpiece while saw is in motion)
- Using paper towels wipe the Trimsaw down and clear any dust particulates from cutting

Post Processing:

- Use snips or tweezers to break support material off of the part. Be careful when finishing delicate parts to avoid breaking off small features.
- Use abrasives such as sandpaper and files to remove marks left by touchpoints until the surface

is satisfactory.

Replacing an empty resin cartridge with a full one of the same type:
More information on the resin system and changing a cartridge can be found on the webpage "Formlabs Resin Tank Information" through the Formlabs website.

1. Remove the empty resin cartridge:
    1. Close the vent cap at the top right of the resin cartridge to prevent resin from spilling out once removed
    2. Hold the cartridge handle and lift to remove from the Form 2. Store the cartridge upright with the valve cover installed to protect storage surfaces from resin.
2. Insert a new resin cartridge:
    1. Shake and rotate the new resin cartridge to ensure that the resin is mixed thoroughly.
    2. Align the cartridge with the opening at the back of the printer. Push down on the cartridge handle until the top of the cartridge is level with the printer.
    3. Press open the vent cap to ensure the resin tank can fill correctly

Maintenance

- Blade Cleaning
- Lubing threads
- filling coolent
- emptying coolent

Form 2 Quick Review

Tool Lead:
Contact: andrewfurst@ucsb.edu

Safety Concern

Safe Operation Procedures Review

Post Processing