General procedure for CNC milling

Creative Spark Enterprise FabLab

This document integrate the basic safety instructions for CNC milling in the FabLab with the Shopbot CNC.

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General Set Up

To be done once a day before starting any job.

1. Check Shopbot bed is clear
2. PPE – Glasses and Ear Protection
3. Disengage spindle
4. Turn machine on
5. Reset VFD
6. Warm up spindle (if first run of the day)
7. Note position of software stop and emergency stop

Job Setup

To be before each job.

- Zero x and Y -*C3*
- Load Tool –
    - Position head somewhere easy to reach (x 300, y300, z 100 for example)
    - Remove Key and take spanner and collet wrench
    - Remove dust shoe
    - Loosen collet nut and remove existing tool
    - Remove collet and check for dust / chips
    - Insert new collet until click
    - Hand tighten collet nut and insert tool until just before flutes start
    - Tighten collet nut
    - Replace dust shoe
- Place stock on machine
- Place hold downs
- Zero Z – (Note it is important to check where zero is in your CAM file, for example the top of your stock or the top of the bed)
    - Check that spindle is still disengaged
    - Remove zero plate and alligator clip
    - Attach clip to bit and place plate below bit
    - Test plate is working by touching to the bit and seeing input 1 light up
    - Run *C2* command
    - Let bit touch plate twice
    - Return the plate and clip to holder
    - Check zero by manually checking with spacer (i.e. use *MZ 18* and offer up a piece of 18mm stock)

- Turn on Extraction
- Run File (If this is the first time running the file and it is complex consider running a ghost pass, Manually set z zero to be 50 – 100mm above the normal zero and run the file and watch that it is behaving as expected)
    - Use FP command to select file
    - Keep defaults on next screen and press enter
    - Check correct bit is in spindle
    - Check z axis is zeroed in correct place
    - Check that spindle key is set to engaged
    - When prompted start spindle
    - Wait for RPM noise to be consistent (this means spindle is up to speed)
    - Run File
- If file contains tool changes after this point go back to step “Load Tool”