

# KeyGuard™ Logo inlaying & finishing process

## 1 STEP 1: CREATING A 3D LOGO FROM 2D IMAGE

Convert an image of your logo into a 3D file. To do so, follow the instructions below and follow these steps:

**Step 1.0** Select a (.PNG to .STL) or (.JPG to .STL) converting source. Typically this is done through web based services. Recommended: [imagetostl.com](http://imagetostl.com).

**Step 1.1** If [imagetostl.com](http://imagetostl.com) used: Fig.1, set the left dropdown to the file type of your logo (.PNG or .JPEG) and on the right drop down verify that “.STL” is shown.

**Note:** Transparent PNGs or background-less PNGs, as well as black and white JPEGs, work best. Lighter tones will produce a more pronounced image. If your logo is not transparent, select “Invert output” and download it as an STL.



Fig. 1

**Step 1.2** Upload your logo image. The blue upload button is shown below:

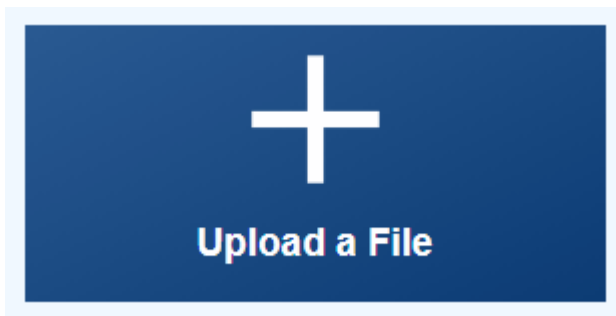
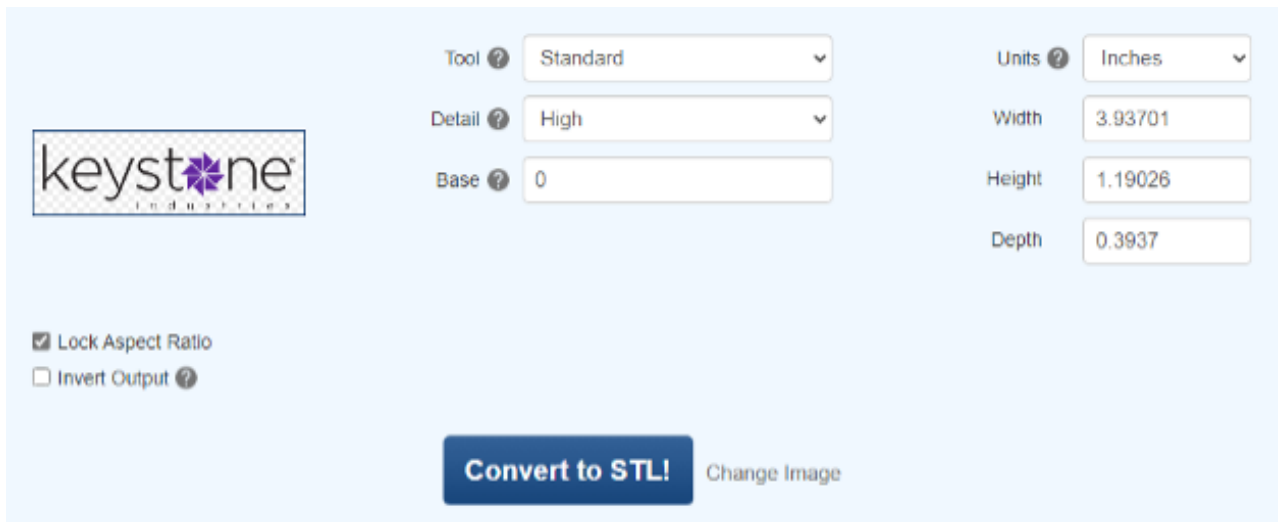


Fig. 2

**Step 1.3** .STL output settings: for best output, select the following options:

**Tool** = Standard | **Detail** = High | **Base** = 0 |  **Lock Aspect Ratio**

The dimensions on the right side of the menu can be used to control the output .STL's size but majority of mesh/CAD programs have scaling capabilities that will allow you to scale the .STL "tool" to what works for your project.



The screenshot shows a web interface for converting a model to STL. On the left is the Keystone Industries logo. The main area contains settings for 'Tool' (Standard), 'Detail' (High), and 'Base' (0). On the right, 'Units' are set to 'Inches', and dimensions for 'Width' (3.93701), 'Height' (1.19026), and 'Depth' (0.3937) are displayed. At the bottom left, there are checkboxes for 'Lock Aspect Ratio' (checked) and 'Invert Output'. A large blue button labeled 'Convert to STL!' is centered at the bottom, with a 'Change Image' link to its right.

**Fig. 3**

**Step 1.4** Click 'Convert to STL' button. After previewing the .STL- once converted, a preview screen will appear and you will be able to preview the .STL file before downloading. This is a useful feature that serves as a final check



**Fig. 4**

## 2 STEP 2: FINALIZING YOUR LOGO .STL

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**Step 2.1** Import the downloaded .STL file into the mesh editor and extrude the 3D logo upwards. This top surface will interface with the guard .STL file. Use a plane cut, as shown below, to eliminate any height variability in the image and to create an even surface to work with. Reference fig. 5-7.



**Fig. 5: Extrude the logo upwards**



**Fig. 6: Use a plane cut from the extruded volume**



**Fig. 7: The result after the plane cut should be your logo with no additional geometries**

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**Step 2.2** After completing your plane cut you will be left with the logo .STL that will be the “tool” to create the negative recess for the logo.

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**Step 2.3** Import your guard .STL Into the same workspace as the logo tool .STL

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**Step 2.4** Align the facial of the guard .STL and the back of the logo tool .STL to a desired position. (typically, as centered on the guard .STL as possible)

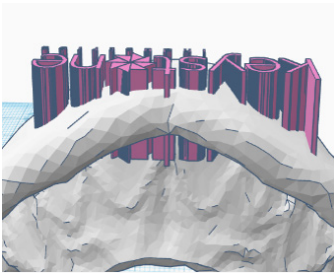


Fig. 8

### Step 2.5

Move the logo tool .STL through the guard .STL so that the logo tool .STL protrudes through the back of the facial area.

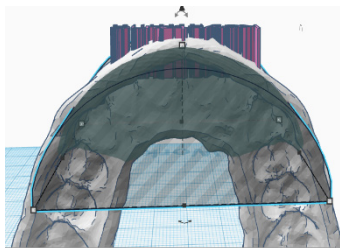


Fig. 9

### Step 2.6

Create a sketch on the plane that is parallel to the intaglio ridge

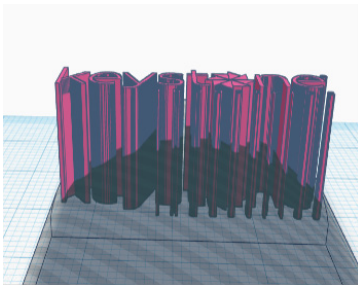


Fig. 10

### Step 2.7

Create a semi-circle that has the same radius as the facial intaglio and extrude the semi circle through the logo tool .STL

**Step 2.8** Perform a cut operation that will leave the remaining geometry of the logo tool .STL embedded within the facial region of the guard. Use the move tool to adjust the logo so that it is embedded about 1/3 of the way through the guard as shown below:

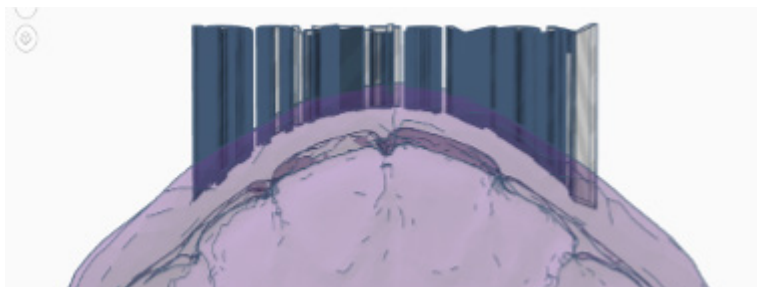


Fig. 11

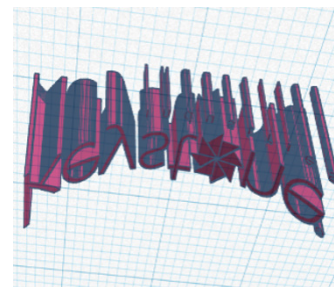


Fig. 12

**Step 2.9** Once trimmed and embedded properly, perform a cut operation using the logo tool .STL as the tool in the operation and the guard as the target body. The result should leave you with the guard .STL that now has your logo as a negative space engraved into the facial (fig.13).



**Fig. 13**

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**Step 2.10** Export your engraved guard as an .STL and import to preferred slicing software. When slicing, it is best to keep the facial facing up, so that uncured resin does not become trapped in the engraving.

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**Step 2.10.1** Send print

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**Step 2.10.2** When finished, remove and wash

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**Step 2.10.3** Using a brush wet with IPA, lightly clean around and smooth the inlay surface. If you still see shiny spots around the logo or inside of it, clean with IPA soaked brush. Before next step, you should have an engraved printed guard that has no residual traces of uncured resin.

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**Step 2.10.4** **DO NOT CURE AFTER WASH**, leave in green state

### 3 STEP 3: FILLING INLAY WITH RESIN

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**Step 3.1** Apply a thin layer of the chosen Keyguard color to the engraving with a brush.



**Fig. 14**



**Fig. 15**

**Step 3.1.2** Before curing, orient and support green-state device to prevent resin from dripping into PCU basin. Follow existing PCU instructions for your printer and resin combination.

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**Step 3.1.3** After guard has been cured, use paper towel with IPA to wipe off semi-cured top layer.

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**Step 3.1.4** Repeat the previous steps curing a thin layer each time until the engraving is completely filled with a slight excess to allow for finishing.

### 4 STEP 4: FINISHING

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**Step 4.1** Use hand-tool/Dremel with Scotch Brite 400grit (black) wheel to remove the cured excess resin from the design until inlay resin is flush with the guard

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**Step 4.2** High grit sand paper can be used as a final touch to even out surface

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**Step 4.3** If layer lines are apparent use pumice wheel with light pressure on low setting or low grit sandpaper with diligent spot checking for quality

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**Fig. 16**

#### **Step 4.4**

Repeat 4.2-4.3  
as needed



Follow along with our  
instructional video