

## Manufacturing Instructions for the “Swivel Right Pro”

### Creating the 3D printed L-Shaped handle:

1. Download the Ideamaker software to your computer via this link:  
<https://www.raise3d.com/download/>
2. Upload the file linked below to the Ideamaker 3D printing software:  
<https://drive.google.com/file/d/1U3SSLwAZ0RdSYRXbT4mU7bnOVqG0e-LU/view?usp=sharing>
3. Using a flash drive from your designated 3D printer, export the file uploaded to Ideamaker and check that your 3D printer has ample filament to print the structures in the file. White filament is most ideal for this print since it is safer to eat with.
4. Select the appropriate file on your 3D printer and begin printing. This process will take close to 5 hours.
5. Be sure to watch the 3D printer closely as it prints the first two layers. Snip away any excess or misplaced filament. Watch for any tangles in the filament as it is being fed into the extruder.
6. Once printing is complete, carefully use a thin spatula to remove the pieces from the printing bed.
7. Heat a 1” x 2” strip of black thermoplastic in boiling water. Use caution with boiling water; be sure to use a spatula to retrieve the thermoplastic from the boiling water and do NOT use your hands. Once flexible (should take approximately one minute in the boiling water), remove and attach around the extended cover on top of the L-shaped handle. Set aside and let cool and harden.
8. Wrap 2 pieces of 1/8” thick and 2” wide foam adhesive to the handle of the 3D printed structure. Cut to size.

### Creating the ring and spoon attachment:

1. Using boiling water and black thermoplastic, take a small metal ring (about an inch in diameter) and carefully meld a thin strip of thermoplastic (no more than 1/4 inch) around the circumference of the metal ring. Use caution with boiling water; be sure to use a spatula to retrieve items from the boiling water and NOT your hands. Set aside and let it harden and cool.
2. Take your silicone spoon from Dollar Tree and bend an inch down from the spoon head with pliers until the metal embedded within the silicone snaps. Use caution and don safety glasses during this portion of assembly.
3. Bend the metal portion of the spoon into an L-shape using pliers.
4. Using boiling water and black thermoplastic, cover the now L-shaped spoon end with thermoplastic.
5. Carefully mold the thermoplastic on the end of the spoon to the ring wrapped in thermoplastic so the spoon and the ring are firmly attached. The opening of the ring should be perpendicular to the spoon. Set aside and let it harden and cool.

### Final assembly:

1. Loop the thermoplastic-covered ring onto the smaller cylinder of the 3D printed handle.

2. Attach the 3D printed enclosure to the end of the smaller cylinder on the 3D printed handle.

\*\*\*Final assembly pictured to the right:



## Manufacturing Instructions for the “Swivel Right Express”

### Creating the 3D printed handle:

1. Download the Ideamaker software to your computer via this link: <https://www.raise3d.com/download/>
2. Upload the file linked below to the Ideamaker 3D printing software: <https://drive.google.com/file/d/1U3SSLwAZ0RdSYRXbT4mU7bnOVqG0e-LU/view?usp=sharing>
3. Using a flash drive from your designated 3D printer, export the file uploaded to Ideamaker and check that your 3D printer has ample filament to print the structures in the file. White filament is most ideal for this print since it is safer to eat with.
4. Select the appropriate file on your 3D printer and begin printing. This process will take close to 5 hours.
5. Be sure to watch the 3D printer closely as it prints the first two layers. Snip away any excess or misplaced filament. Watch for any tangles in the filament as it is being fed into the extruder.
6. Once printing is complete, carefully use a thin spatula to remove the pieces from the printing bed.

### Final assembly:

1. Cut 1 piece each of 1” x 4” hook and loop velcro using scissors.
2. Loop the velcro through the hole in the 3D printed handle and wrap around your swivel spoon. Your swivel spoon should be positioned perpendicular to the hole in the 3D printed handle.
3. Fasten the velcro around the swivel spoon.

\*\*\*Final assembly pictured to the right:

