

# FOCUS STACKING (IMAGE SLICING)

## ■ WHAT IS IT? ■

- ✦ Focus stacking or slicing as some call it, is most useful for advertising or product photography and even food photography.
- ✦ Conceptually, slicing is similar to the HDR process. You take several shots and merge them together. In HDR photography you blend photos with different exposure values. In slicing, you blend photos with different focus points (like slices of bread all put back together into an unsliced loaf).
- ✦ With macrophotography you have to decide what you want in focus and what you want out of focus. If you can't get the entire object that you want to show in focus then you will have to decide if focus stacking is an appropriate option (obviously, focus stacking would not be an appropriate option outside, on a windy day.)
- ✦ The more magnified an object is, the shallower the DOF, thereby requiring more image slices for a successful final image composite.

## ■ MICROPHOTOGRAPHY ■

Microscopy produces images that are magnified at 10x – 20x on the camera sensor.

- ✦ For microscopy you need specialized lenses and compound microscopes.
- ✦ This is exciting photography as you start to see parts of your world that you wouldn't be able to see otherwise.

Some interesting websites discussing microphotography:

<http://www.microscopyu.com/smallworld/gallery/contests/2009/index.html>

<http://www.krebsmicro.com/>

## ■ FOCUS STACKING ■

**WHEN?** Getting the necessary DOF with the sharpest aperture settings (middle range) is highly unlikely. (It's a problem even at the smallest aperture.)

**HOW?** Take multiple shots and use software to fuse those shots together, showing all 'focused' parts in one image.

**WHERE?** Slices need to be produced in a stable environment where the object and camera remain still and at constant distance relationship to each other.

**WHAT?** An object where the camera can't produce enough DOF at the magnification you desire or when you are shooting multiple items where you want to show one item completely in focus and the other items out of focus - directing the eye of the viewer towards one specific object.

# FOCUS STACKING

(continued)

- ✈ Three programs are available for focus stacking: **Helicon Focus, Photoshop, CombineZM.** Helicon Focus and Photoshop work on both Macs and PCs. CombineZM works only on a PC.
- ✈ Helicon Focus can handle large images that are 16 bit, raw files. (I've had trouble with this though, so I shoot my files in TIFF or JPG format. If you only shoot in RAW then convert to JPG or TIFF before pulling the photos into the stacking app.) CombineZM can not handle larger RAW files. Photoshop doesn't merge the images satisfactorily (at least on a Mac).
- ✈ It's *absolutely* necessary to use a tripod for focus stacking as images must register with each other. Tethered shooting is extremely helpful as you can see the images at a much larger scale, right away.
- ✈ You can either use a stationary camera and adjust focus ring for each shot or use a focus rail to move the camera for each shot. If you use ring flash you should use a stationary camera as otherwise your lighting intensity will vary between component pictures.

## ■ PROCESS ■

1. Tether camera to computer (common connections use USB cables)
2. Turn on the camera
3. Start Nikon Camera Control Pro (if you have it) or other tethering software program
4. Put camera in "Live View" mode via the software (if this option is available - if not, then skip this step)
5. Shoot photo series (focus will need to shift from front/back or back/front throughout series) -  
using the software focus shift button "minus" shifts focus towards you (comes closer to you),  
"plus" shifts focus away from (moves further away from you)
6. After series of photos has been shot, start Helicon Focus software
7. Navigate to the tethered photos directory on your computer
8. Drag photo series into Helicon Focus window and start the stacking process
9. Save composite photo in desired location on computer
10. Proceed with any post-processing of photo (clean-up work) in Photoshop or program of your choice

### ✈ **Links with related information about Helicon Focus:**

<http://pindelski.org/Photography/2008/09/06/helicon-focus/>

[http://www.photographers-resource.co.uk/photography/slicing/Helicon\\_focus.htm](http://www.photographers-resource.co.uk/photography/slicing/Helicon_focus.htm)

[http://www.photographers-resource.co.uk/photography/slicing/Depth\\_of\\_field\\_magic.htm](http://www.photographers-resource.co.uk/photography/slicing/Depth_of_field_magic.htm)

[http://www.heliconsoft.com/focus\\_articles.html](http://www.heliconsoft.com/focus_articles.html)

<http://www.poppphoto.com/Reviews/Accessories/Extreme-Depth-of-Field-with-Helicon-Focus>