

Graphic Art Cameras for DAZ Studio

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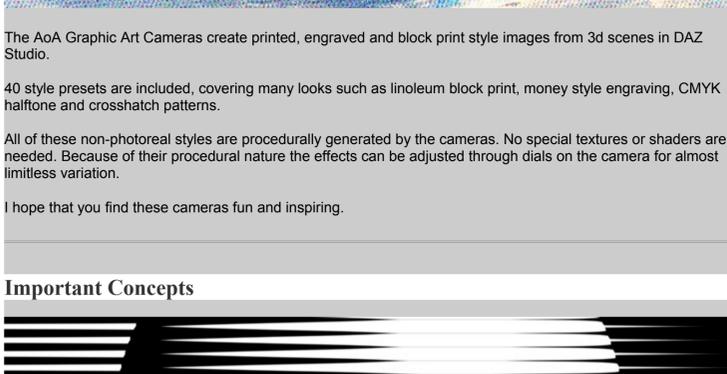
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Introduction



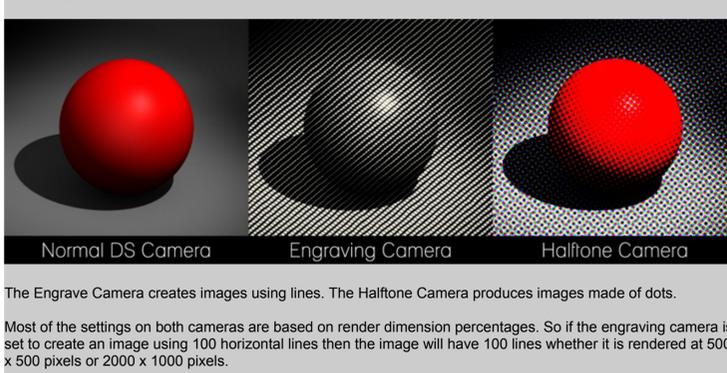
The AoA Graphic Art Cameras create printed, engraved and block print style images from 3d scenes in DAZ Studio.

40 style presets are included, covering many looks such as linoleum block print, money style engraving, CMYK halftone and crosshatch patterns.

All of these non-photoreal styles are procedurally generated by the cameras. No special textures or shaders are needed. Because of their procedural nature the effects can be adjusted through dials on the camera for almost limitless variation.

I hope that you find these cameras fun and inspiring.

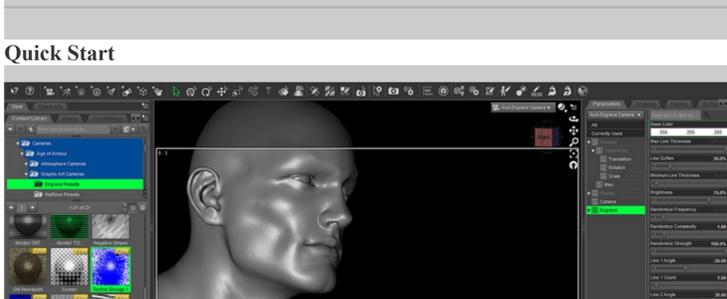
Important Concepts



The cameras sample the scene and produce renders made of mathematically generated lines and dots. Because of anti-aliasing and a limited number of pixels to create patterns from, very low resolution renders may not convey all styles very well.

Fortunately, these cameras render just as fast as a regular DAZ Studio Camera. Actually, you can usually create good looking, printed style renders faster with these cameras than with a standard DS camera.

This is because the Graphic Art Cameras generally need less detail information and work quite well with far lower quality render settings (such as Shading Rate, Pixel Samples and Shadow Samples) than are required by standard DS cameras.



Normal DS Camera

Engraving Camera

Halftone Camera

The Engrave Camera creates images using lines. The Halftone Camera produces images made of dots.

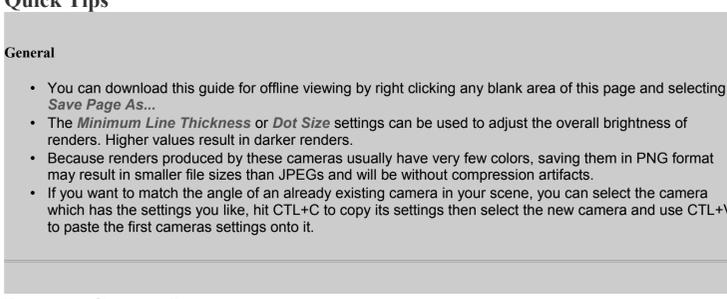
Most of the settings on both cameras are based on render dimension percentages. So if the engraving camera is set to create an image using 100 horizontal lines then the image will have 100 lines whether it is rendered at 500 x 500 pixels or 2000 x 1000 pixels.

The reason to note this is that non-square renders may benefit from using line or dot counts that are a percentage of the render size ratio. For instance, a 650 x 500 pixel render may look better using 65 horizontal dots and 50 vertical dots rather than an equal 50 x 50 dots.

Similarly, angles are based on the assumption of a square image so lines set to run at a 45 degree angle will run exactly 45 degrees in a 1000 x 1000 render but will appear to be at a shallower angle in a 1920 x 1080.

These are not set rules. They are only mentioned to better explain what is happening, under the hood, to generate the images. I encourage you not worry about math or set numbers but to experiment with the settings freely and see what cool effects and styles you can create.

Quick Start



The cameras can be found in the content folder under Cameras - Age of Armour - Graphic Art Cameras.

Load whichever camera style you prefer and aim it like any other DS camera.

To apply a preset, select the camera in the scene then double click a preset from one of the Engrave Presets or Halftone Presets subfolders. The presets contain only style parameter settings. They do not change the location or angle of the camera.

Render settings are not particularly important with these cameras. You can often use very low quality render settings and still achieve good looking, print style images.

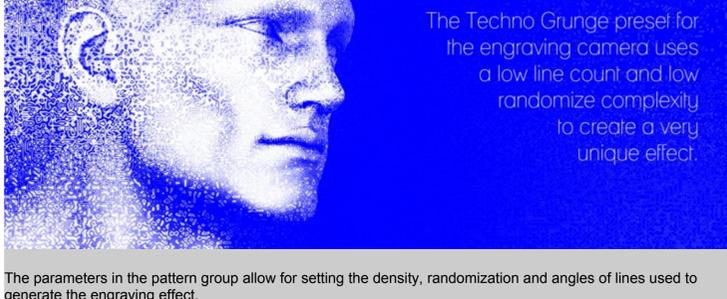
With that said, cameras using a high dot or line counts tend to look better in large renders. Also, because of the patterned nature of the images produced by the cameras, simpler scenes with distinct items tend to look nicer than very busy and detailed scenes. Again, this is a general observation, not a rule.

Quick Tips

General

- You can download this guide for offline viewing by right clicking any blank area of this page and selecting *Save Page As...*
- The *Minimum Line Thickness* or *Dot Size* settings can be used to adjust the overall brightness of renders. Higher values result in darker renders.
- Because renders produced by these cameras usually have very few colors, saving them in PNG format may result in smaller file sizes than JPEGs and will be without compression artifacts.
- If you want to match the angle of an already existing camera in your scene, you can select the camera which has the settings you like, hit CTL+C to copy its settings then select the new camera and use CTL+V to paste the first cameras settings onto it.

Engrave Camera Parameters



The parameters in the pattern group allow for setting the density, randomization and angles of lines used to generate the engraving effect.

- **Max Line Thickness** - Limits the thickest a line can be in dark areas of the scene. This can be used to add some variation to scenes which are very dark or when line 2 is used and the line density is very high. I find this setting should usually be left at its default 100%.
- **Line Soften** - This is an anti-aliasing function that blends the edges of the lines slightly so that they do not appear pixelated. At higher values, the lines may appear blurry or washed out.
- **Minimum Line Thickness** - This determines the thickness of lines in bright areas of the scene. As with *Max Line Thickness* this setting can usually be left at its default. If more or less contrast is needed it is generally better to adjust the *Brightness* setting instead.
- **Brightness** - Working somewhat like a contrast setting, this setting adjusts the brightness of the sampled pixels before the information is passed to the line generating functions. Lower numbers will generate thicker, more dense lines throughout the image. Higher values will increase the high end contrast of the image producing more bright areas with thin or absent lines in highlights.

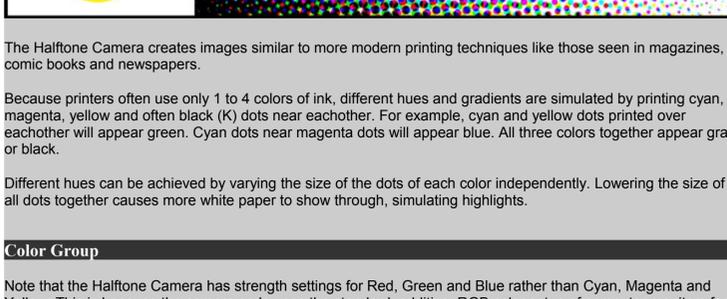
The default 50% usually looks good when just line 1 is used. As *Line 2 Strength* is increased, you may find renders look better when the *Brightness* setting is also increased.

- **Randomize Frequency** - Randomization of the lines happens in a wave-like fashion. This setting increases the number of waves.
- **Randomize Complexity** - Continuing the wave analogy, this parameter adds small ripples on top of the randomized waves. Higher values add more, even smaller ripples on top of the previous ripples. Each whole number higher adds another layer of complexity and yields a finer yet more noisy randomization.
- **Randomize Strength** - This adjusts the amplitude of the randomization or, in other words, how far the randomized pixels will be shifted from their original position.
- **Line 1 Angle** - Sets the direction that the first set of lines should run before being randomized. 0 degrees is horizontal, a setting of 90 produces lines running vertically and -45 degrees will cause the lines to run from the upper left corner to the lower right corner of the render.

This setting is based on the assumption the render is square, though non-square image ratios are perfectly fine and will cause no problems.

- **Line 1 Count** - This sets the number of lines that will be used, by the first set of lines, to generate the image. More lines means more detail will be captured. You can turn off the limits for this parameter if you wish to have a greater number of lines than the default limit of 400. Images with very high line counts may benefit from being rendered larger.
- **Line 2 Angle** - Same as *Line 1 Angle* but allows for second set of lines to be run at a different angle to produce a crosshatch, woven or wavy pattern.
- **Line 2 Count** - This sets the number of lines that will be used in the second set of lines.
- **Line 2 Strength** - Adjusts the darkness of the second set of lines.

Halftone Camera Parameters



The Halftone Camera creates images similar to more modern printing techniques like those seen in magazines, comic books and newspapers.

Because printers often use only 1 to 4 colors of ink, different hues and gradients are simulated by printing cyan, magenta, yellow and often black (K) dots near eachother. For example, cyan and yellow dots printed over eachother will appear green. Cyan dots near magenta dots will appear blue. All three colors together appear gray or black.

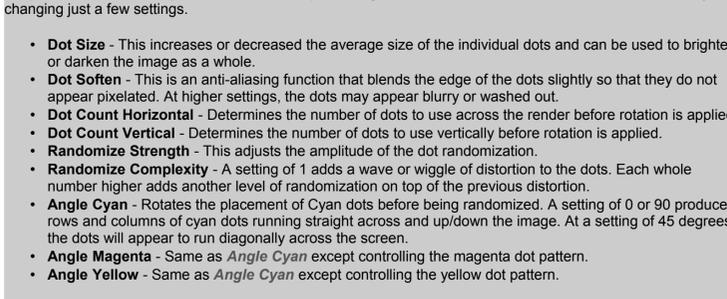
All dots together can be achieved by varying the size of each color independently. Lowering the size of all dots together causes more white paper to show through the dots of the generated highlights.

Color Group

Note that the Halftone Camera has strength settings for Red, Green and Blue rather than Cyan, Magenta and Yellow. This is because the camera code uses the standard, additive, RGB color used of computer monitors for the input and output. However, the final result appears like multiplicative CMYK color used in printing. A bit confusing I know... That's just how it works haha.

- **Saturation Output** - Controls the overall saturation of the final render. When set to 0% the image will be black and white and the cyan, magenta and yellow dots will appear as shades of gray.
- **Halftone Strength** - Mixes between the standard DS type render and the procedurally generated halftone image.
- **Saturation Input** - Unlike *Saturation Output* this setting only controls the saturation of the information that is supplied to the pattern generation functions. If the saturation is set to 0% the resulting image will appear black and white from a distance but will, in fact, be made from equal amounts of cyan, magenta and yellow dots.
- **Strength Red** - Adjusts the overall brightness of the red channel of the image.
- **Strength Green** - Adjusts the overall brightness of the green channel of the image.
- **Strength Blue** - Adjusts the overall brightness of the blue channel of the image.

Pattern Group



The parameters in the pattern group allow for setting the density, randomization and angles of the dots used to generate the halftone effect.

Despite the few available parameters, there is quite a large number of different looks that can be achieved by changing just a few settings.

- **Dot Size** - This increases or decreased the average size of the individual dots and can be used to brighten or darken the image as a whole.
- **Dot Soften** - This is an anti-aliasing function that blends the edge of the dots slightly so that they do not appear pixelated. At higher settings, the dots may appear blurry or washed out.
- **Dot Count Horizontal** - Determines the number of dots to use across the render before rotation is applied.
- **Dot Count Vertical** - Determines the number of dots to use vertically before rotation is applied.
- **Randomize Strength** - This adjusts the amplitude of the dot randomization.
- **Randomize Complexity** - A setting of 1 adds a wave or wiggle of distortion to the dots. Each whole number higher adds another level of randomization on top of the previous distortion.
- **Angle Cyan** - Rotates the placement of Cyan dots before being randomized. A setting of 0 or 90 produces rows and columns of cyan dots running straight across and up/down the image. At a setting of 45 degrees the dots will appear to run diagonally across the screen.
- **Angle Magenta** - Same as *Angle Cyan* except controlling the magenta dot pattern.
- **Angle Yellow** - Same as *Angle Cyan* except controlling the yellow dot pattern.

Known Issues

Always - While rendering you will see the error message:

```
"3Delight message #145 (Severity 1): S2073: 'SceneMin' is not a parameter of shader 'brickyard/(148dec1c-1a47-4fee-9c25-a139f25cfe9d)/shader_Imager"
```

This should have no negative effects. The cause is probably due to DAZ Studio attempting to add a RenderMan token (a bit like a note) to the camera referencing a variable that the camera does not have.

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