## BCC Halftone Filter

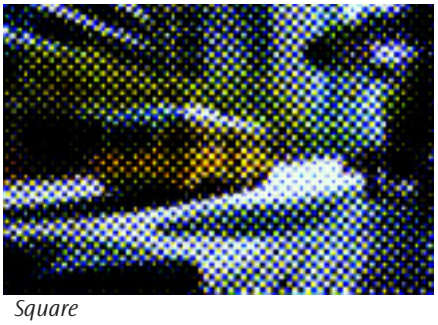
The Halftone filter simulates the look of printed material by converting the image to simulated halftone dots. Print images are comprised of a rosette pattern of colored ink dots. To avoid moire or interference patterns, the dots are printed at different angles; this process is known as halftone screening. This is also used in the art world as a creative process such as the work produced by Lichtenstein.

*Original Image*

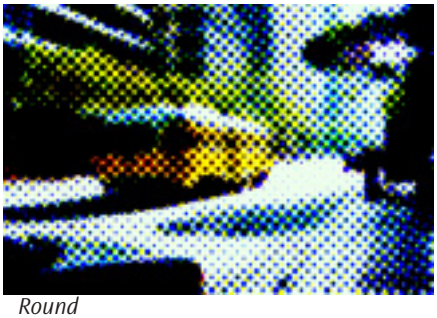
*Filtered Image*

To apply the BCC Halftone filter to a title or matte, you must select the **Preserve Alpha checkbox**.

The **Shape menu** sets the shape of the simulated ink dots to ***Square***, ***Round*** or ***Line***.



*Square*



*Round*

The **Paper Color menu** sets the color of the paper on which the image is "printed."

- When ***Automatic*** is chosen, the paper color is set to black when the Color Scheme menu is set to RGB and white for other Color Scheme menu settings. The Paper Color parameter is ignored when Transparent is chosen.
- When ***Color*** is chosen, the **Paper Color** parameter in the Colors & Angles parameter group sets the color of the paper.
- When ***Transparent*** is chosen, the paper generates an alpha channel. This allows you to composite the Halftone effect over tracks lower in the timeline. The Paper Color parameter is ignored when Transparent is chosen.
- When ***Original Image*** is chosen, the paper is composited over the filtered image. The Paper Color parameter is ignored when Transparent is chosen.

The **Color Scheme menu** determines whether the effect is created in ***B&W***, ***RGB***, ***CMY***, or ***CMYK*** color space. The RGB mode simulates lights, while the other modes simulate ink. With lights, the color is additive, and should be set against a dark "paper color." Ink is subtractive, and should be set against a light "paper color."

*B&W*

*RGB*

*CMY*

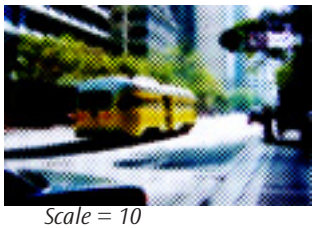
*CMYK*

The **Channel for B&W menu** determines which channel creates the effect when the Color Scheme menu is set to B&W. The choices are ***Luminance, Lightness, Brightness, Hue, Saturation, Alpha, Red***, ***Green***, or ***Blue***.

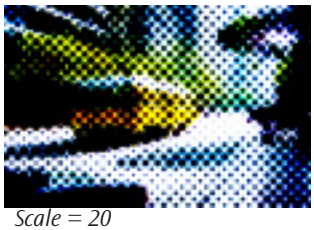
**Pre Blur** blurs the source image before the halftone is applied. This operation softens the edges of the image, without increasing the number of output colors.

**Post Blur** blurs the image after the halftone is applied, creating softer edges where the colors blend. Increasing Post Blur increases the number of output colors.

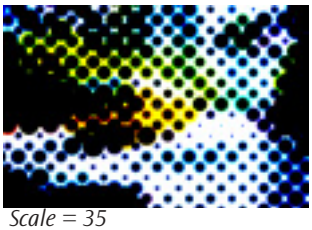
**HT Scale** sets the size of the simulated ink dots. Increasing values reduces the number of dots used to create the image. As the size of the dots increases, fewer dots are used.



*Scale = 10*



*Scale = 20*



*Scale = 35*

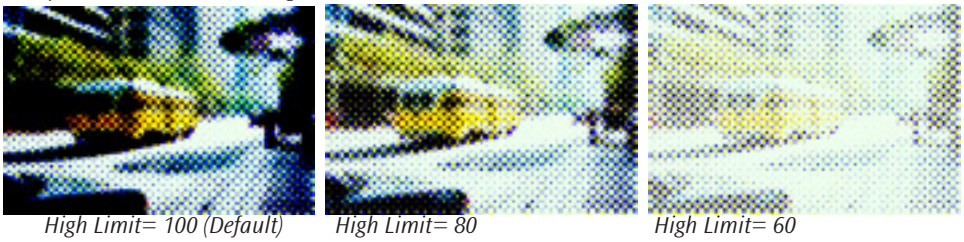
**HT Aspect** sets the aspect ratio of the dots. Decreasing negative values stretch the dots horizontally. Increasing positive values stretch the dots vertically.

*Aspect = -5* *Aspect = 0* *Aspect = 5*

**HT Smoothing** adjusts the amount of anti-aliasing applied to the halftone dot. Higher values produce more blur, which tends to reduce the detail and noise in the filtered image.

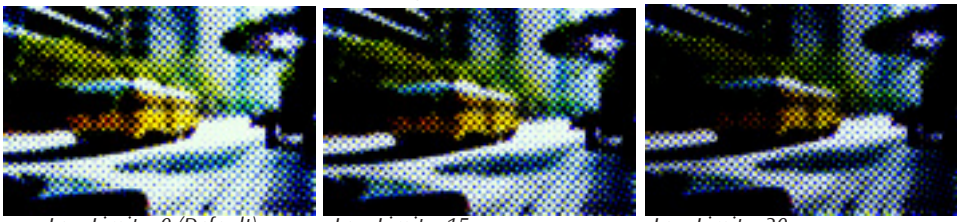
**Low Limit** and **High Limit** set the minimum and maximum dot sizes, respectively. These values are represented as a percentage of the dot size. The closer in value High Limit and Low Limit are, the less variation in size. When Low Limit is greater than or equal to High Limit, all dots are the same size.

Examples of different values in High Limit with Low Limit set to 0



*High Limit= 100 (Default)* *High Limit= 80* *High Limit= 60*

Examples of different values in Low Limit with High Limit set to 100



*Low Limit= 0 (Default)* *Low Limit= 15* *Low Limit= 30*

**Brightness** adjusts the brightness of the image. Increasing the Brightness setting pushes colors toward white, and decreasing the setting pushes colors toward black.

**Contrast** adjusts the contrast of the image. Increasing the Contrast setting pushes colors toward pure colors, and decreasing the setting pushes colors toward 50% gray.

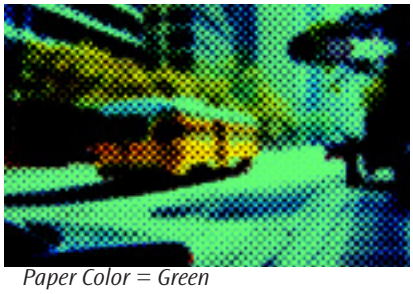
### Screen Origin Parameter Group

The **X** and **Y Point** controls set the location of the filter on the X and Y axis respectively.

### Colors & Angles Parameter Group

**Paper Color** sets the color of the paper on which the image is "printed."

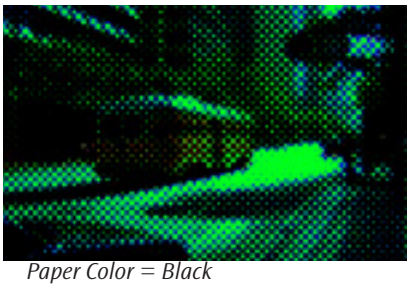
CMYK Color Scheme



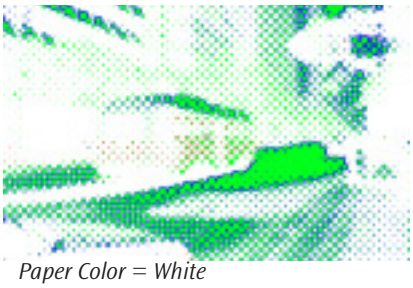
*Paper Color = Green*

*Paper Color = Yellow*

RGB Color Scheme



*Paper Color = Black*



*Paper Color = White*

The RGB Color Scheme mode simulates lights; the other Color Scheme modes simulate ink. With lights, the color is additive and should be set against a dark Paper Color. Ink is subtractive and should be set against a light Paper Color.

**Red Color**, **Green Color**, **Blue Color**, **Cyan Color**, **Magenta Color**, **Yellow Color**, and **Black Color** set the colors to use in the effect. The colors that apply depend on the Color Scheme menu. For example, if the Color Scheme menu is set to B&W, only Paper Color and Black Color apply. If the Color Scheme menu is set to RGB, only Paper Color, Red Color, Green Color, and Blue Color apply.

The **Red Angle**, **Green Angle**, **Blue Angle**, **Cyan Angle**, **Magenta Angle**, **Yellow Angle**, and **Black Angle** controls set the angle of the dot grid (or screen, in printing terminology).

The **Preserve Alpha checkbox** determines whether the effect uses alpha channel information. With Preserve Alpha selected, the original alpha is not affected (you will not see the effect in transparent areas).

You must select this checkbox if you are applying to a title.

The **Premultiply checkbox** controls whether or not low-opacity pixels are considered "dark." This checkbox has no affect if the image is fully opaque.

Processing media one field at a time can cause flickering. The **Deflicker menu** allows you to reduce flicker in the rendered image. The only way to evaluate a deflicker setting is to render and play back the effect on an NTSC monitor. Choose from the following options.

- ***1-2-1*** mixes each pixel with the pixels above and below it, with the input pixel getting twice the weight as the ones above and below.
- ***2-3-2*** provides more softening than 1-2-1.
- ***1-1-1*** provides the most softening if effects still contain flicker with the above options.
- ***Off*** is the default. If Off is chosen, no deflickering occurs.

**Mix with Original** blends the source and filtered images. Use this parameter to animate the effect from the unfiltered to the filtered image without adjusting other settings, or to reduce the affect of the filter by mixing it with the source image. At a value of 0, the image is unaffected by the filter.

### Motion Tracker Parameter Groups

The Motion Tracker parameter groups allow you to track the motion of an object, then use the motion path data to control another aspect of the effect. The parameters that can be affected depend upon the filter. See "Working with the Motion Tracker Parameter Groups" on page 29 for details.

### The PixelChooser Parameter Group

The PixelChooser is included in many Boris filters and provides several methods to selectively filter an image.

For more information on the PixelChooser, see Chapter 10, "The PixelChooser" in the User Guide, or open the help file for the standalone PixelChooser filter.