

BCC Particle Emitter 3D

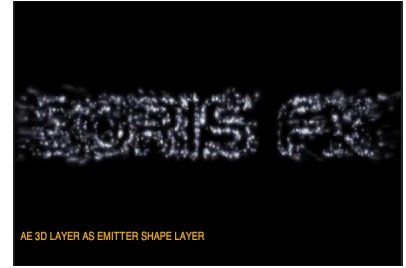
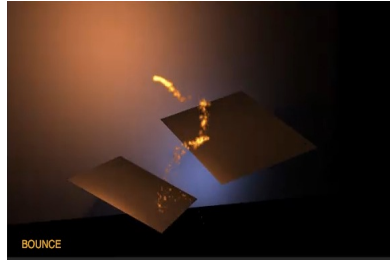
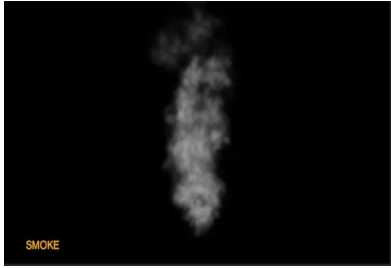
PLEASE NOTE THAT THIS DOCUMENT IS A WORK IN PROGRESS AND AS SUCH IS INCOMPLETE.



Filter Description:

BCC Particle Emitter 3D is a particle based generator style filter. It can emit an array of particles and offers several interesting ways of manipulating the emitting of particles based on emitter and particles controls, interaction with AE layers, external forces movements, fractal noise patterns, random dispersion, and more. The filter supports AE lights and camera for simple integration into AE 3D compositions.

Sample Effects:



Render Group:

Includes parameters affecting the **image quality** of the effect and other **global render related** settings.

Anti-Aliasing: None, Low, Medium, High, Higher, Highest ; sets the level of anti-aliasing applied to smooth edges

Composite on Layer: Allows selection of a layer to composite the effect upon

Layer Transfer Mode:

Intersect with Layer: allows you to choose a layer in the timeline that will intersect emitted particles path

Layer Distance: allows adjustment of the intersecting layer's distance to the particles' intersecting points

Layer Scale: allows adjustment of the intersecting layer's size

Opacity Boost: allows adjusting opacity values of the particles

Use Source as Mask: when enabled, the particles will take any masking applied to the filter layer into account in their use of the layer, otherwise they will ignore masks.

Motion Blur and Shutter Angle: offers options for various levels , simulating motion blur seen in camera footage. When set to **Host Settings**, the motion blur of the filter matches the motion blur set for the AE comp it's applied in.

DOF Falloff, DOF Resolution: when using Depth of Field (Built-in or Comp camera) these affect the appearance and quality

Use Comp Lights:

When enabled, the filter will use AE lights enabled in the comp. The maximum number of total lights (including built-in and AE lights) the filter can use at once is 8. If there are more than 8 enabled AE lights in the comp it will use the 8 enabled light tracks that are topmost in the timeline.

Use Built-in Lights:

There are also 3 built-in lights available. It's possible to use both built-in and AE lights simultaneously. If enabled, the built-in lights will have priority over AE lights in terms of which lights get used if the total number of lights exceeds 8.

Use Comp Camera:

When enabled, the filter will display the Particle Emitter from the perspective of the enabled AE camera whose track is topmost in the timeline. When Use Comp Camera is enabled, the Built-In Camera group is disabled.

EMITTER Group:

Birth Rate: controls the number of particles born per second. The default value is 40.

Particle Speed: sets the speed at which the particles move across time and space.

Speed Random % and Speed Random Dist: these allow setting of different values for the particles' Speed/ Lifespan/ Size/ Opacity and Interaction Layer Friction which allows you to much better natural phenomena.

Particle Lifespan and Lifespan Random %: determines how long each particle lasts.

Gravity: applies a secondary force to the particles' movement as they flow from the source. Positive gravity values will pull the particles down and negative gravity values will pull them to float upwards.

Emitter Shape: determines the type of emitter used. The popup offers a variety of choices for determining the shape from which the particles emit, including 3D shapes like Sphere and Box, as well as choices for using alternate AE layers to determine the shape.

Direction: determines the flow of the emitted particles in the direction chosen.

Spread %: affects the overall tightness of the particle pattern. Decreasing this value brings the particles closer, while increasing it spreads the particles and causes them to flow farther from the source.

Rhythm and Rhythm Interval (sec): set the overall behavioral pattern of the flow of particles emitted. Choices are: Continuous, Randomized, Bursts and Random Bursts.

Acceleration Type: choice of None (Constant), Explosive or Accelerate offers a way for the particle speed to change over its lifetime. When using the *Explosive* choice the particles will decelerate over their lifetime (like debris shot out by an explosion) while using the *Accelerate* choice results in the particles speeding up over the course of their lifetime.

Acceleration Impulse and Acceleration Mix: setting of these values allow for manipulating particles' behavior when in motion. Available only when either *Explosive* or *Accelerate* is selected as an *Acceleration Type*.

Pos XY and Pos Z: these set the values for the particles' position along X, Y and Z axis.

Inertia from Emitter %: this parameter looks at the changes in position over time. It applies some speed change to the particles based on how the emitter position changes over time. It will have no effect if the Emitter position is static.

Rotate X, Rotate Y and Rotate Z: rotate the emitter along X, Y and Z axis resp.

Scale Master: sets scale values across all three axis (X, Y and Z) when the *Emitter Shape* is set to Sphere, Box or Alpha Map.

Scale X, Scale Y and Scale Z: set scale values along individual X, Y and Z axis when the *Emitter Shape* is set to Sphere, Box or Alpha Map.

Emitter Layer: allows selection of a layer to emit from when *Emitter Shape* is set to either Alpha Map, Alpha Map: 3D Layer or Position Point: 3D Layer.

Layer Mode: allows selection of emitter layer's video property. The choices are Alpha, Inv. Alpha, Luma and Inv. Luma. Only available when *Emitter Shape* is set to Alpha Map or Alpha Map: 3D Layer.

Selected Light Emitters: available only when Emitter Shape is set to Comp Light(s) these affect the emanating property depending on the selection option. The choices are: All Lights, Visible Lights, Non-visible Lights, First Light Only, Last Light Only, Lights named BORISxxx, Lights named PARTICLExxx.

Intensity scales Birthrate: when the check-box is enabled, the birthrate matches the changes in the Light Emitter's intensity.

Pre-Run (secs): sets particles' starting time. The value can be set to show that the particles started before the effect does.

Time Scale: sets the overall speed of the effect's aspects based on the option selected in *Time Scale Affects* pop up menu. Higher the value faster the speed.

Time Scale Affects pop-up: setting of the *Time Scale* value affects the effect's aspects based on the pop-up selection. The choices are: Movement and Rotation, Movement Only and Rotation only.

Time Jump: the value can be set to show a jump within the effect's time scale indicating a skip in the emitter's otherwise continuous process (or, essentially, particles' lifespan).

Time Jump Random (%): randomizes *Time Jump* values so that it affects different particles at different times.

Time Resolution:

PARTICLES Group:

Particle Shape pop-up: determines the shape of the particles based on the selection from the pop-up menu.

Preset Image pop-up: when *Particle Shape* is set to Preset Image this menu becomes available and lists both the default preset images that get installed with the software and any customized ones that are saved in the directory:



The directory path for the Preset Images is:

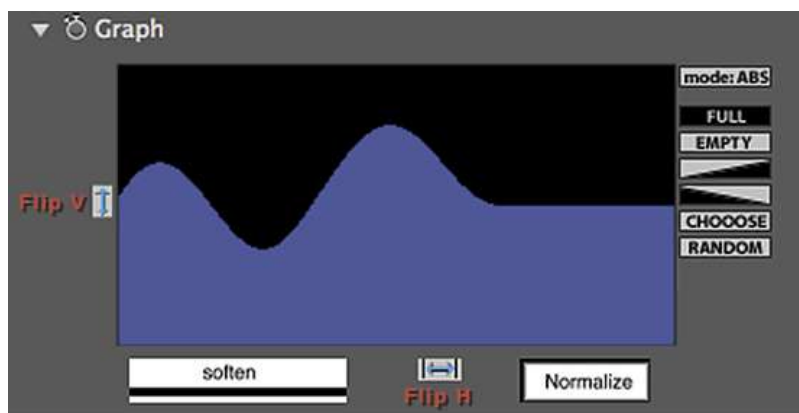
Macintosh: Application Support/BorisFX/ParticleShapes
 Windows: Program Files (x86)\Boris FX.Inc\ParticleShapes

Size: sets the size of the particles.

Size Random %: randomizes the size so that all particles are not the same size and are instead set to varying sizes.

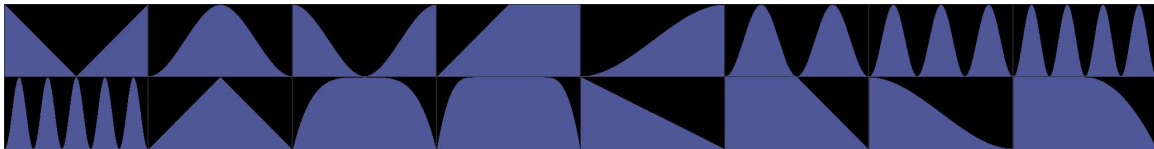
Use Size Evolution check-box: when enabled, activates *Size Evolve Graph* mode giving options to manipulate the size evolution.

Size Evolve Graph: available when Use *Size Evolution* is checked, it gives various graph mode options to manipulate the evolving sizes of the particles.

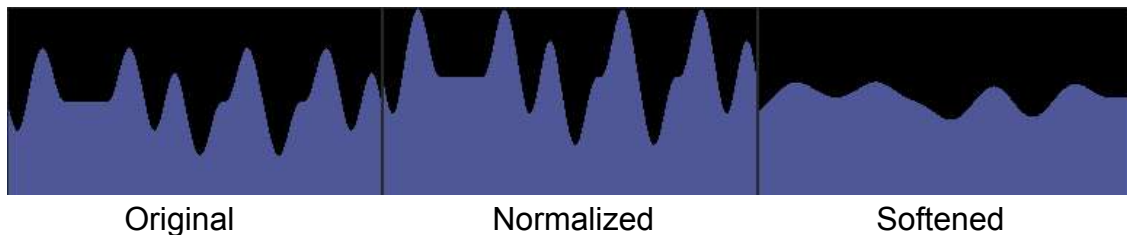


Graph UI: The blue colored area of the graph represents areas of the particle size evolution that will be affected while black represents areas that will not.

Graph Buttons: The graph includes buttons for flipping the graph horizontally and vertically, buttons for making the graph FULL (completely blue color) or EMPTY (completely black color) or half and half using even diagonals. The **RANDOM** button will generate a random graph and it can be useful to try clicking this button repeatedly watching the graph and the effect on the particle array to spot interesting results. The **CHOOSE** button cycles through a series of preset graphs illustrated immediately below. These preset graphs can be used as they are or modified in various ways. By keyframing the graph itself it's also possible to interpolate between them.



There are also buttons to **Soften** or **Normalize** the graph (see illustration below).



Moving the cursor over the graph display itself results in a different cursor display and **clicking and dragging within the graph allows for freehand drawing to edit the graph**. The “mode” button toggles between 2 different graph editing modes (and different cursors); **Absolute (ABS)** mode will completely redraw the area of the graph in which the mouse drag occurs, while **Relative (+/-)** mode will either extend or carve away from the blue area depending on where the cursor is when the click/drag begins. The cursor shows a “+” (**plus**) sign when in the blue area of the graph and **clicking and dragging then will allow for adding to the blue area**, and the cursor shows a “-” (**minus**) sign when in the black area and **clicking and dragging then will allow for subtracting from the blue area**. When editing the graph by hand the result is sometimes not so smooth but clicking the “soften” button a few times can smooth it out nicely.



The graph itself is an animatable parameter, and so it is possible to have different graphs on different keyframes and the filter will interpolate between the 2 graphs. This can be used to get some interesting results.

Color Mode (Current Color, Birth Color, Gradient Random, Gradient Evolve, Layer Random, Layer Evolve Left>Right, Gradient Evolve Top>Bottom and From Comp Lights): options for specifying a color of the particles.

Color from Comp Lights (Inherit from Emitter, All Lights, Visible Lights, Non-visible Lights, First Light Only, Last Light Only, Lights named BORISxxx and Lights named PARTICLExxx): options for specifying color of the particles from Comp Lights. The last two options are for custom light settings which need to be saved with these prefixes.

Material Shininess and **Material Specular**: for 3D and Custom Shape particle types, these parameters allow for adjusting the appearance of 3D lighting on the surface of the particles.

Opacity: sets the opacity of the particles.

Opacity Random %: randomizes the opacity so that all particles are not at the same opacity and are instead set to varying opacity.

Use Opacity Evolution and Opacity Evolve Graph: work the same way as described for *Size* above.

Blend Mode and **Blend Mix**: determine whether and how much the particles composite with each other using Normal, Add, Lighten or Screen mode.

Image Layer and **Layer Modes**: allow for using the image property (Alpha Only, Color and Alpha, Color and Luma Alpha, Luma Alpha, Inv. Luma Alpha or Premult Color and Alpha) from an alternate layer as the image mapped to each particle.



These (and some related) parameters become available when **Particle Shape** is set to any option except *Preset Image* and *Round Blurs*.

Mix-in-Particle Color check-box: when enabled, applies the chosen particle color to the mapped image layer.

Sample Mode:

Current Frame: displays animated Image Layer's frame based on the current position of the CTI.

Random Frame: displays animated Image Layer's frames from within the range set for **Num Frames**.

Birth Frame: stays the same as the frame it was when the particle was born.

Layer Evolve: the particle evolves from its birth from the beginning of the layer.

Shape Character: this parameter makes the **3D Discs to appear with hollow centers** and it can change **the 3D Cylinders into Cone shapes**.

Preserve Orientation: when Preserve Orientation is enabled, 3D particles' orientation in relation to the camera is maintained regardless of the camera perspective or particles' rotations. This means that if the Particle Transforms are left at default, the particles will always seem to be facing the camera which is useful for some types of effects. The Preserve Orientation setting does not apply to other (non-3D) Particle Types since those types always face the camera regardless of perspective or rotations.