

# Phoenix FD TP Birth operator

This page provides information on the Thinking Particles Phoenix FD Birth operator.

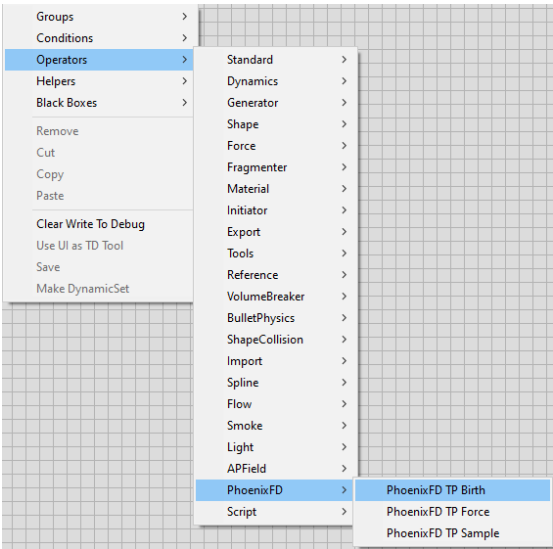
## Overview

The Phoenix FD Thinking Particles operators allow you to create and modify particles based on the Phoenix fluid simulation.

The birth probability is based on the fluid parameters and is determined by the corresponding diagrams. For example, particles can be created only in those areas of the Phoenix simulation where the Temperature is above a certain threshold, there is no Smoke, or the Speed is very high.

### UI Path

||Thinking Particles Properties window|| > **Dynamic Set** > Operators > Phoenix FD > **PhoenixFD TP Birth**



## Inputs

**Time** [ time ] – Time at which the TP Birth operator should evaluate.

**On** [ bool ] – True if the TP Birth operator should be enabled.

**Position** [ position ]– The positions at which the operator will test its conditions for birthing.

**Particle** [ particle ] – The particles at whose positions the operator will test its conditions for birthing.

When no **Position** or **Particle** input is present, the entire Phoenix Simulator is tested for birth conditions.

**Birth Rate** [ scalar ] – Overrides the value set in the TP Operator's UI.

**Lifespan** [ scalar ] – Overrides the value set in the TP Operator's UI.

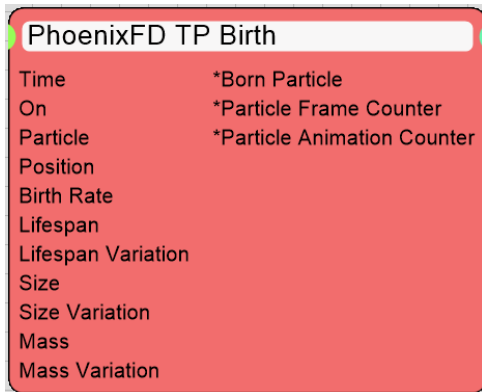
**Lifespan Variation** [ scalar ] – Overrides the value set in the TP Operator's UI.

**Size** [ scalar ] – Overrides the value set in the TP Operator's UI.

**Size Variation** [ scalar ] – Overrides the value set in the TP Operator's UI.

**Mass** [ scalar ] – Overrides the value set in the TP Operator's UI.

**Mass Variation** [ scalar ] – Overrides the value set in the TP Operator's UI.



## Outputs

**\*Born Particle** [ particle ] – The particles born from the TP Birth operator.

**\*Particle Frame Counter** [ integer ] – The amount of particles born from the TP Birth operator on the current frame.

**\*Particle Animation Counter** [ integer ] – The amount of particles born from the TP Birth operator during the current thinkingParticles simulation.

\*\*\* denotes an array output - multiple values will be output during a single evaluation of the TP Birth operator.

## Parameters

**Phoenix Simulator** | *node* – Determines which Simulator will be used to read the fluid data from.

**Group** – Specifies a thinkingParticles Group to place the newly generated particles into.

**Rate** | *rate\_type[0], rate\_percent* – Sets a multiplier to the base birth rate of the operator.

**Rate (max prt/s)** | *rate\_type[1], rate\_per\_sec* – Set a limit to the number of particles born per second.

**Seed** | *seed* – An initial value for the random numbers generator.

**Lifespan** | *lifespan* – The average lifespan of the generated particles. When Variation (%) is set to 0, all particles have exactly the same lifespan.

**Variation (%)** | *lifespan variation* – Varies the lifespan of the generated particles. If set to 100%, the shortest living particles will have a live twice shorter than average, and the longest living particles will have double the average **Lifespan**.

**Size** | *size* – The average Size of the generated particles. When Variation (%) is set to 0, all particles have exactly the same Size.

**Variation (%)** | *size variation* – Varies the Size of the generated particles. If set to 100%, the smallest particles are two times smaller than average and the largest particles will have double the average **Size**.

**Mass** | *Mass* – The average Mass of the generated particles. When Variation (%) is set to 0, all particles have exactly the same Mass.

**Variation (%)** | *mass variation* – Varies the Mass of the generated particles. If set to 100%, the lightest particles have Mass two times lower than average and the heaviest particles will have double the average **Mass**.

**Combine** | *combine* – Sets the method used to combine the results of the diagrams for Temperature, Smoke and Speed.

**Add** – The values are added.

**Multiply** – The values are multiplied.

**Biggest** – The biggest value is selected.

**Temperature/Smoke/Speed/Fuel** | *use\_t, use\_s, use\_v, use\_f* – Diagrams representing the birth density based on each source channel.

**Reset** – Resets the corresponding diagram with its default content.

## ▼ PhoenixFD TP Birth ⋮

Phoenix Simulator:

None

Group

All ▼



Rate (%)

100.0



Rate (max prt/s)

25.0



Seed

0



Lifespan

25



Variation (%)

0.0



Size

1.0



Variation (%)

0.0



Mass

1.0



Variation (%)

0.0



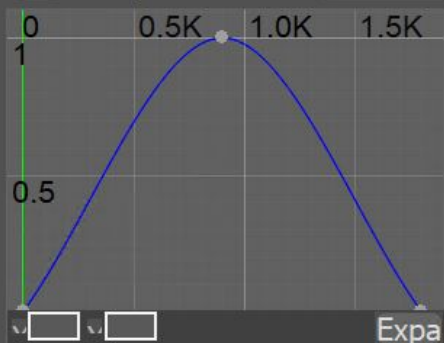
Combine

Add ▼



Temperature

Reset



Smoke

Reset

