



B9Captivate
Creativity Unleashed

Glossary of Terms

PROFESIONAL LEVEL



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Material

Display Name (previously “Name”)

The name that appears for this material in the printer's list of available materials.

Example: B9R 2 – Black

Version

Developer-controlled version to track iterations of this .b9mat file.

Input: Any alphanumeric input

Color

Color used in the print preview image on the printer. Color should approximate the final color of the printed material.

Printer XY Scaling – Enterprise Only

Enables correctional scaling based on the printer’s internal dimensional accuracy calibrations. Used to compensate for any printer-specific calibration error.

Default: Yes

Not applicable with FAST technology.

Description

Description is not currently visible on the printer. It is used to describe a material and/or material setting.

Quality

Quality settings control the desired thickness and the exposure values associated with them. Exposure has a drastic effect on some fields, such as bleed, and so they are included with this section.

Layer Thickness (μm) (previously “Thickness (μm) ”)

Thickness of each slice. Measured in micrometers (microns).

Range: 10 to 170 μm

Default: 30 μm

Thickness Display Name

Name that displays on the printer when selecting the slice thickness. If left blank, defaults to Layer Thickness (μm).

Example: "50 μm – Recommended"

Time Multiplier

The estimated print time is multiplied by this number before displaying the result.

Example: If the print is estimated to take 24 minutes and the Time Multiplier is set to 1.5, the user will see an estimated print time of 36 minutes.

Range: 0.1 to 5

Default: 1

Z Bleed Depth

Light always penetrates farther than the current layer being printed, curing excess resin on previously cured layers. Z Bleed Depth compensates for this excess curing in the Z direction.

Range: 0 to 3 mm

Default: 0.1 mm

Exposure

The base exposure used for each layer, measured in millijoules per square centimeter.

Range: 0.1 to 600 mJ/cm^2

Default: 1 mJ/cm^2

Foundation Exposure

Sets the total exposure to use on the first foundation layer(s). Every printer model has at least 1 foundation layer, some have more. Measured in millijoules per square centimeter.

Range 0 to 2,000 mJ/cm²

Default: 6 x Exposure

Over Exposure Factor

There are three cases to consider for Over Exposure Factor.

1) Unsupported pixels (FAST and Non-FAST): With FAST, Over Exposure Factor changes the exposure for unsupported pixels by multiplying the exposure by the Over Exposure Factor and adding that extra to the exposure. For example, if the exposure is 10 mJ/cm² and the Over Exposure Factor is 0.5, the total exposure for the unsupported pixels would be 15 mJ/cm². ($10 + 0.5 \cdot 10 = 15$)

An unsupported pixel is defined as a pixel where the same pixel in the previous layer was not formed.

This helps to bridge large overhang areas.

2) Top pixels (Non-FAST only): As above, the Over Exposure Factor changes the exposure for a "top pixel".

A top pixel is where a pixel is "on" in the current layer and "off" in the next layer.

3) XY bleed (Non-FAST only): Over Exposure Factor changes the exposure within the 0 radius.

Exposure for each pixel is multiplied by Over Exposure Factor, depending on the number of pixels surrounding it. A pixel that is completely surrounded by other lit pixels will receive the normal exposure, while a pixel with no lit pixels around it will receive the normal exposure multiplied by the Over Exposure Factor. The radius checked for surrounding pixels is determined by the XY Bleed value.

Range 0 to 5

Default: 0

XY Bleed

Radius of surrounding pixels to check for the Over Exposure Factor.

Range 0 to 3 mm

Default: 0 mm

Not applicable with FAST technology.

Cycle

Cycle settings control the movement of the mechanical arm while printing. These settings substantially affect the speed and success of the print.

The minimum and maximum values are used by the printer to optimize results. The actual, calculated value will vary but will fall between the minimum and the maximum.

Initial Settle Time

Minimum settle time for the initial layers. After the build table moves down into the resin, it waits a length of "settle time" so the resin can stop moving before starting the next layer.

Range: 0 to 300,000 ms

Default: 14,000 ms

Settle Time Min (previously "Settle Min (ms)")

Minimum settle time for layers after the initial layers. After the build table moves down into the resin, it waits a length of "settle time" so the resin can stop moving before starting the next layer. Calculated settle time is geometry-dependent and scaled between the Settle Time Min and Settle Time Max.

Range: 0 to 300,000 ms

Default: 300 ms

Settle Time Max (previously "Settle Max (ms)")

Minimum settle time for layers after the initial layers. After the build table moves down into the resin, it waits a length of "settle time" so the resin can stop moving before starting the next layer. Calculated settle time is geometry-dependent and scaled between the Settle Time Min and Settle Time Max.

Range: 0 to 300,000 ms

Default: 7,000 ms

Initial Raise Height – Enterprise Only

Minimum distance to lift the build table to separate the newly finished initial layer from the vat window.

Range: 0.01 to 20 mm

Default: 1.4 mm

Raise Height Min (previously "Release Raise Min (mm)")

Minimum height to lift the build table to separate the newly finished layer from the vat window. Calculated height is geometry-dependent and scaled between Release Height Min and Release Height Max.

Range: 0 to 20 mm

Default: 0.8 mm

Raise Height Max (previously “Release Raise Max (mm)”)

Maximum height to lift the build table to separate the newly finished layer from the vat window. Calculated height is geometry-dependent and scaled between Release Height Min and Release Height Max.

Range: 0 to 20 mm

Default: 1.2 mm

Initial Release Time – Enterprise Only

Amount of time to pause after the Initial Raise to separate the newly finished initial layer from the vat window.

Range: 10 to 60,000 ms

Default: 4,000 ms

Release Time Min (previously “Release Min (ms)”)

Minimum amount of time to pause for the build table to separate the newly finished layer from the vat window. Calculated release time is geometry-dependent and scaled between Release Time Min and Release Time Max.

Range: 0 to 60,000 ms

Default: 200 ms

Release Time Max (previously “Release Max (ms)”)

Maximum amount of time to pause for the build table to separate the newly finished layer from the vat window. Calculated release time is geometry-dependent and scaled between Release Time Min and Release Time Max.

Range: 0 to 60,000 ms

Default: 1,000 ms

Default: 0 ms