FABRIC GUIDE

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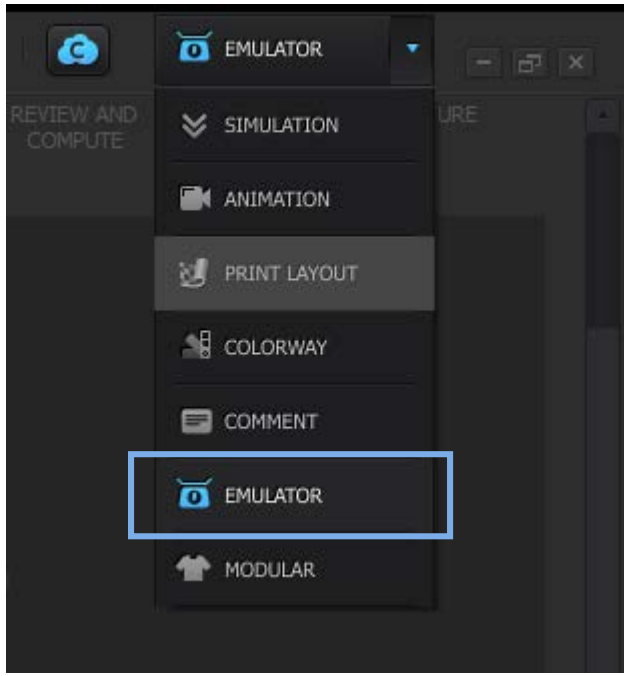
CONTENTS

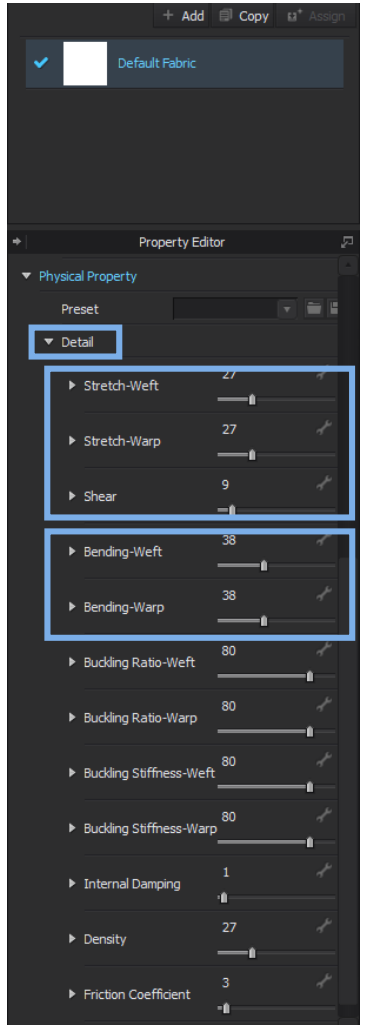
PHYSICAL PROPERTIES

The Fabric Kit

To accurately digitize fabrics with the CLO Fabric Kit, open Emulator Mode and follow the instructions in the video link below.



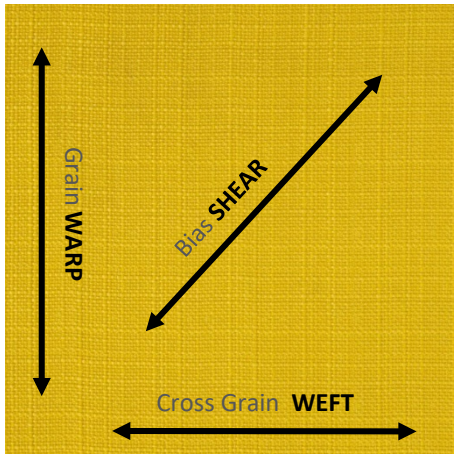
Understanding Physical Properties



Stretch

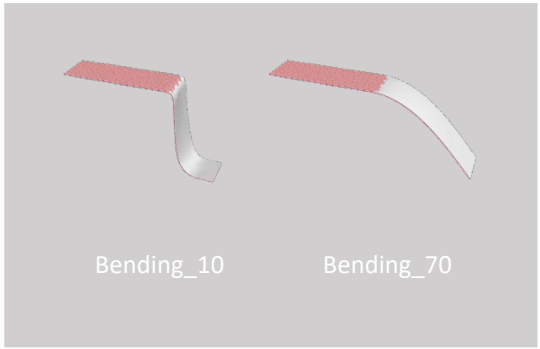
How much the fabric stretches.

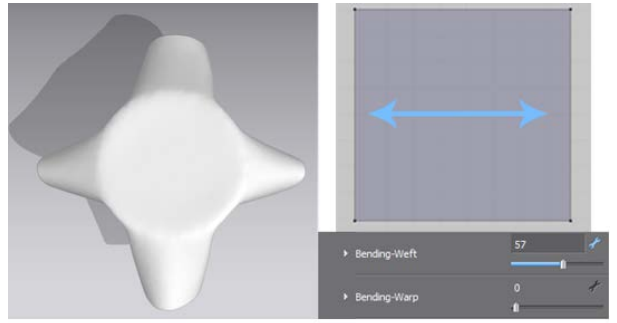
The lower the number the more elastic it becomes. Most fabrics have a stretch value of 0~66.



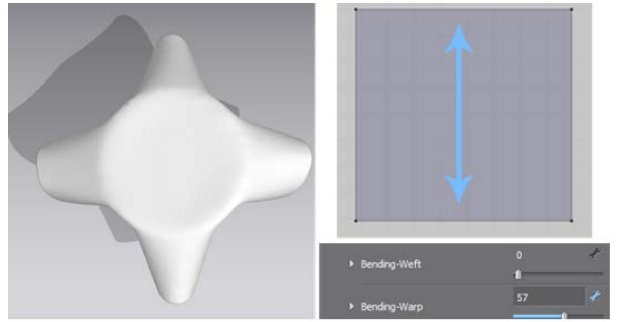
Bending

Fabric stiffness.



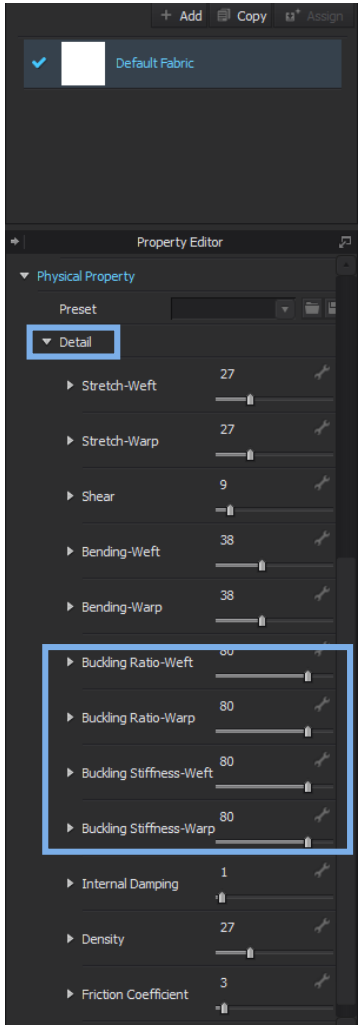


▲ Expressing materials with Weft (Horizontal) bending intensity



▲ Expressing materials with Warp (Vertical) bending intensity

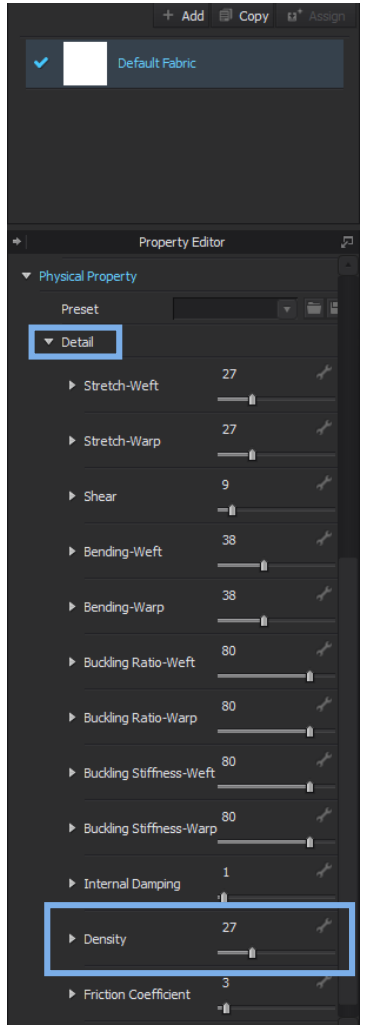
Understanding Physical Properties



Buckling

Buckling is used to express the shape of a fabric's creases.

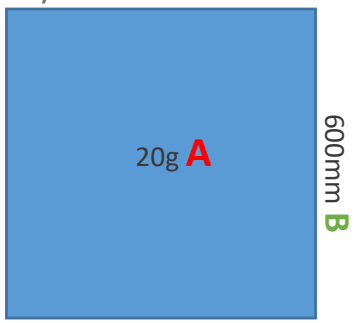
Understanding Physical Properties



Density

The fabric's weight in grams per square millimeters.

Ex)



20 ÷ 360000 = 0.00005

A ÷ (B × C) = Density

Silhouette differences according to the Physical Property

If the Grainline is modified for the Texture rotation, the Physical Properties of the garment will be changed as well.

Applying Fabric files measured with the actual Fabric and CLO Fabric Kit gives the most realistic silhouette.

Adding Fabric's Physical Properties

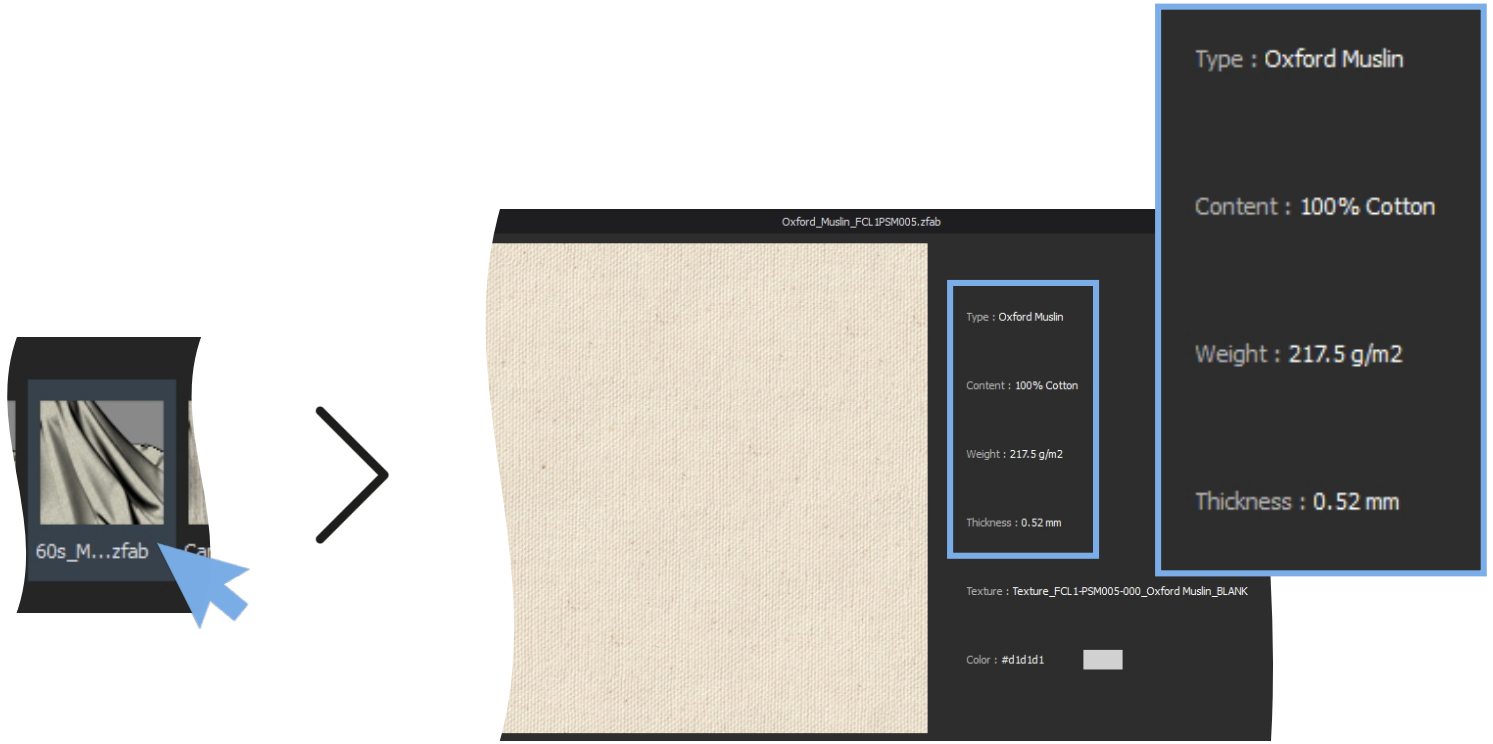
Actual garment

Default Fabric

If there is no actual Fabric — Use the most similar Fabric from the Library.

Check the contents by placing the cursor on the Fabric in the Fabric Library.

Select the most similar Fabric by checking its contents.



TEXTURES

Importance of Normal Map

Apply Normal Maps to express uneven Textures.

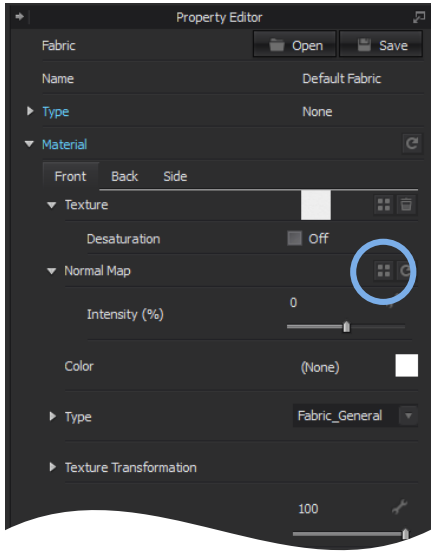
Without Normal Map images

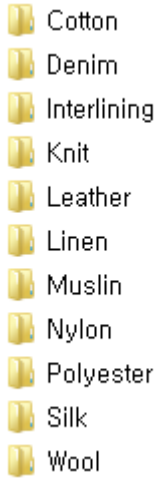
With Normal Map images

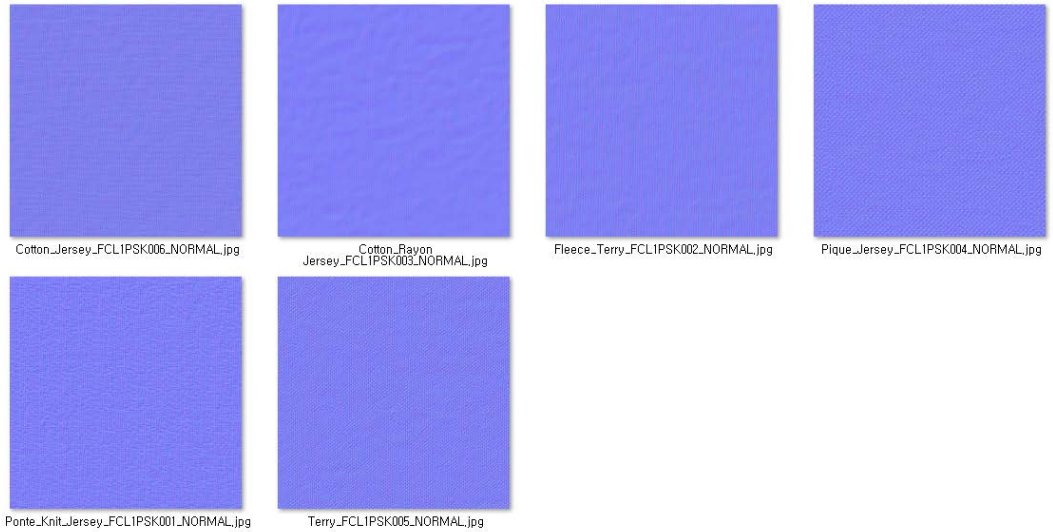
Normal Map helps express the realistic uneven Texture of the Fabric with shadows.

If there is no actual Normal Map

Use the default Normal Maps in CLO.







Select the Fabric and navigate to the Property Editor - Normal Map, locate the desired Normal Map image and click Open.

Good example of one repeat Texture

Ensure that grids are avoided on repeat and color when applying Textures

Grids appears

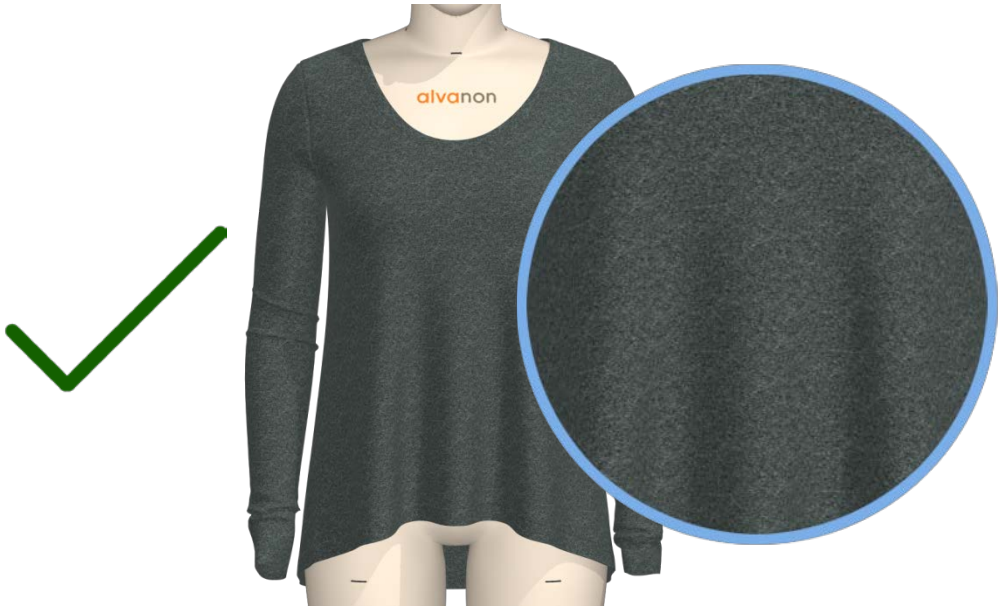
Lines appears

Setting DPI for the edited Texture

Ensure that the DPI of the image is set after editing the Texture, to the same DPI of the original scan.

Modify the DPI in a graphic editing software such as Photoshop, because it can be loaded at a different scale if the DPI of the scanned Texture was modified while editing.

Original DPI : 300 DPI
Fixed DPI : 300 DPI



Original DPI : 300 DPI
Fixed DPI : 72 DPI

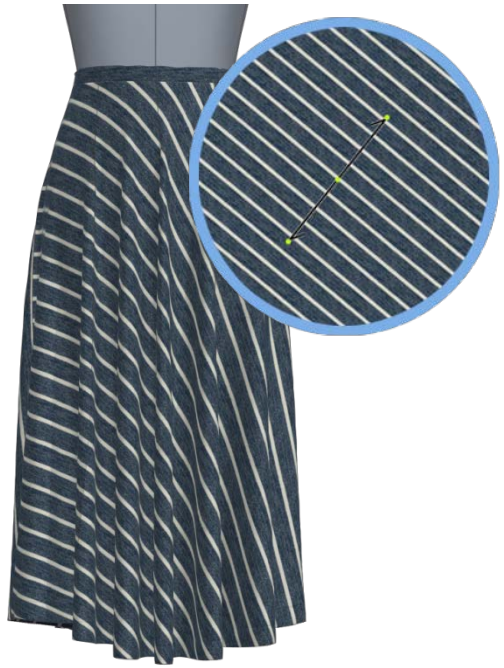
When editing (Rotation) Texture

If the Grainline is modified for the Texture rotation, the Physical Properties of the garment will be changed as well.

Note that the silhouette of the garment will change when rotating the Grainline, since it changes the direction of the Texture as well as the Fabric's Physical Properties.

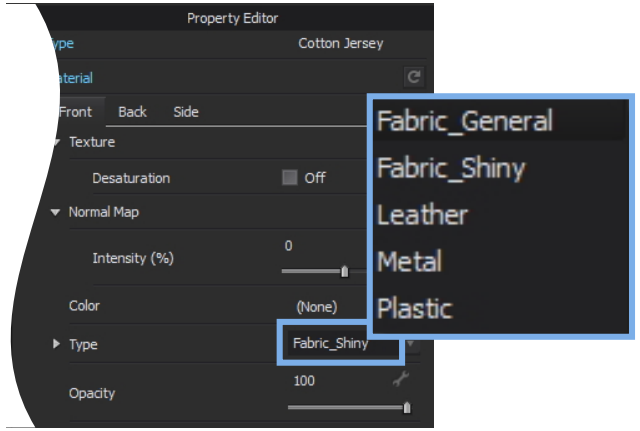
Warp

Bias



Changing Material Type

Set the appropriate Material Type for the Fabric.



Select the Fabric and apply the appropriate Material Type in the Property Editor.

General

Shiny

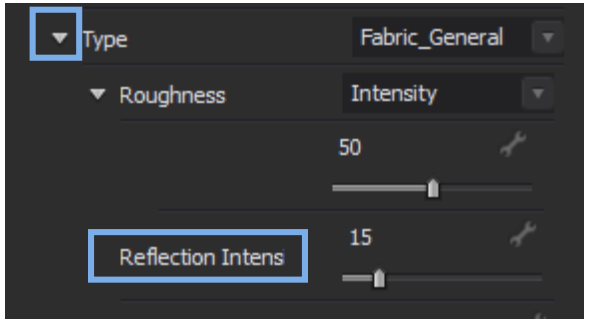
Leather

Metal

Plastic

Materiel Type Properties

Reflection intensity increases the amount of reflection, and roughness spreads the reflected light.



Reflection Intensity

The example below demonstrates how the reflection intensity controls the reflectivity of the material. Note that this intensity acts as a white filter for the base color.

A material with higher reflection intensity reflects more light, so it looks white and blurry.

Base Color	40, 40, 40
Roughness	100
Reflection Intensity	0

Base Color	40, 40, 40
Roughness	100
Reflection Intensity	25

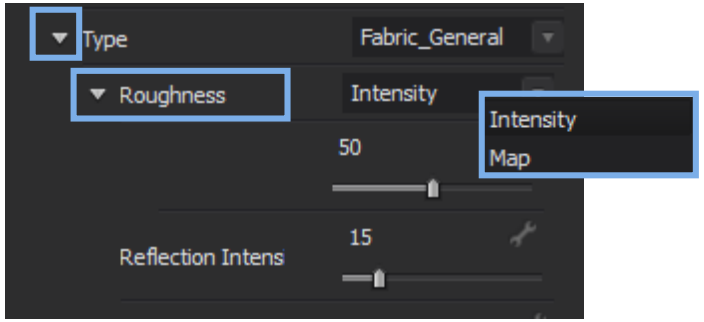
Base Color	40, 40, 40
Roughness	100
Reflection Intensity	50

Base Color	40, 40, 40
Roughness	100
Reflection Intensity	75

Base Color	40, 40, 40
Roughness	100
Reflection Intensity	100

Materiel Type Properties

Reflection intensity increases the amount of reflection, and roughness spreads the reflected light.



Roughness

Roughness controls the sharpness of reflections. Lower values allows light to be reflected in a small area and larger values allows light to be reflected in the whole object area.

The amount of roughness can be changed with the Intensity slider, or a custom roughness map may be imported.

Base Color	40, 40, 40
Roughness	0
Reflection Intensity	50

Base Color	40, 40, 40
Roughness	25
Reflection Intensity	50

Base Color	40, 40, 40
Roughness	50
Reflection Intensity	50

Base Color	40, 40, 40
Roughness	75
Reflection Intensity	50

Base Color	40, 40, 40
Roughness	100
Reflection Intensity	50

Normal Maps and Roughness

The middle and right image have the same parameters except for the normal map.
Nevertheless, the right image looks a bit more rough.

The normal map makes the surface of the object bumpy (=rough), so the highlights are reduced.
Placing a normal map is similar to increasing roughness.

Roughness	100
Reflection Intensity	80

Roughness	20
Reflection Intensity	80

Roughness	20
Reflection Intensity	80

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