## Blade

Drawing process of blade material go through mainly 3 material functions (2 sub functions). Each functions have multiple parameters, which are categorized into five (Detail, MF_Polished, MF_Sharpened, MF_Sharpened_Detail, MF_Stained) .

Process 1 – MF_KatanaSharpened

Image 1 – Sharpened

This process figures out the whole foundation of blade surface. But also it become a final output in the red area(*image 1).
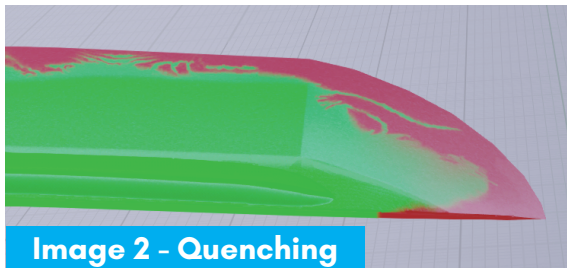
Image 2 – Quenching

Martensite

Material of cutting edge which is red masked in the image 2.
It formed by quenching process, tending to have higher stiffness and brittler than troostite.

Troostite

Green part of the image 2. Troostite formed by quenching but more mild reaction. It possess elasticity to the blade be durable.

Clear Coat

Clear coat and clear coat roughness are able to be changed directly.

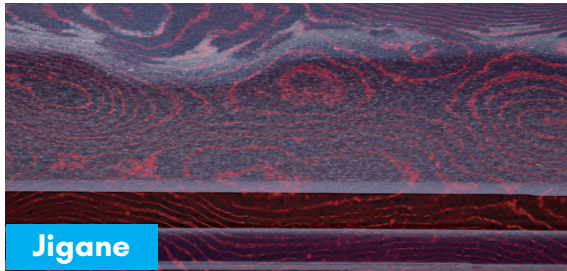**Parameters**

MF_Sharpened /

- ClearCoat
- ClearCoat Roughness
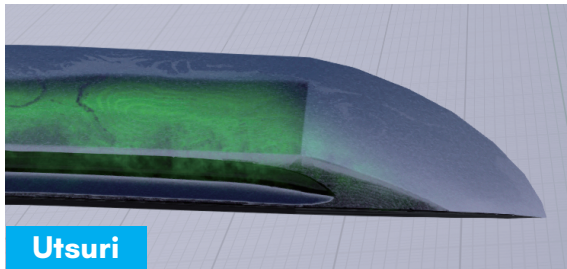- Martensite Color
- Martensite Roughness
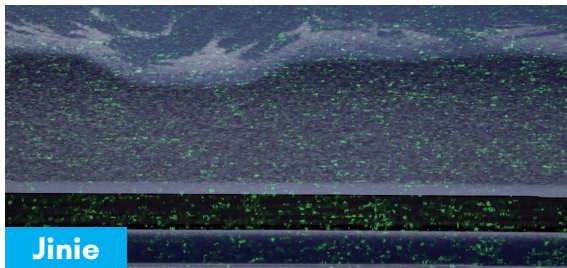- Troostite Color
- Troostite Roughness

Jigane

Pattern come from lamination of forged iron. Using a tiled texture. Red line like woodgrain pattern contains more carbon than the other position.

Utsuri

One of the effect on the blade produces weak color expression, such as white line. It is feature in some school of swordsmith.

Jinie

It observed as particles of high roughness and white color over the entire surface.

Parameters

MF_Sharpened /
    Jigane Roughness
Detail /
    Jigane Contrast   Jinie Opacity   Jinie Roughness
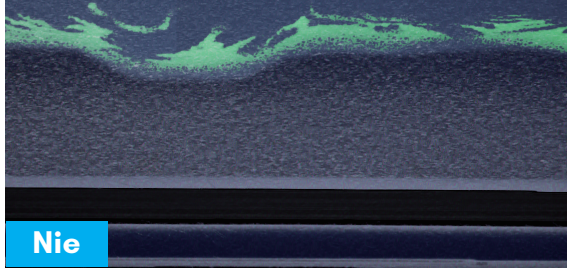   Utsuri Color   Utsuri Opacity   Utsuri Roughness

Nioi (Nioi-kuchi)

Transition area between martensite and troostite. Rough surface due to microcrystallites generated by quenching, reflects light in wide angle.

Nie

Nie

Similar to Nioi, but come from crystallites growth larger enough to see particles. Using tiled texture and 2 bias parameter to change the particles look like.

Parameters

MF_Sharpened_Detail /

Nie Bias 1	Nie Bias 2
Nie Opacity	Nie Roughness
Nioi Color	Nioi Color Opacity
Nioi Roughness	Nioi Roughness Opacity

Process 2 – MF_KatanaStained
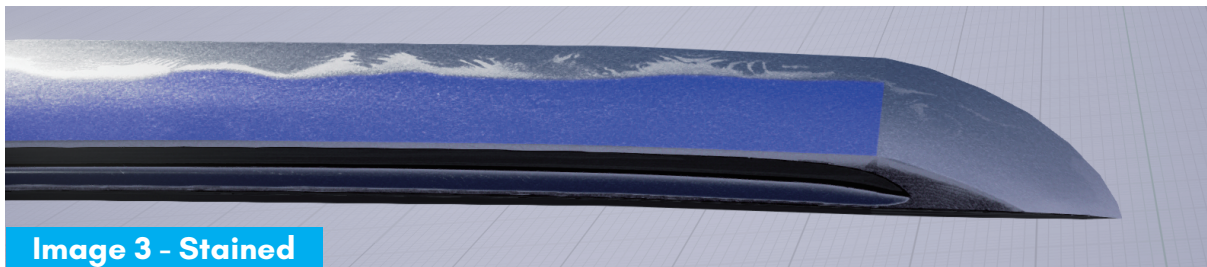
Image 3 - Stained

In this process, we stain the blade darker to present a beautiful appearance. The area to be stained is shown in blue (*Image3)

Parameters

MF_Stained /

- Stain ClearCoat
- Stain Color (Base)
- Stain Color (Carbon)
- Stain Opacity
- Stain Roughness (Base)
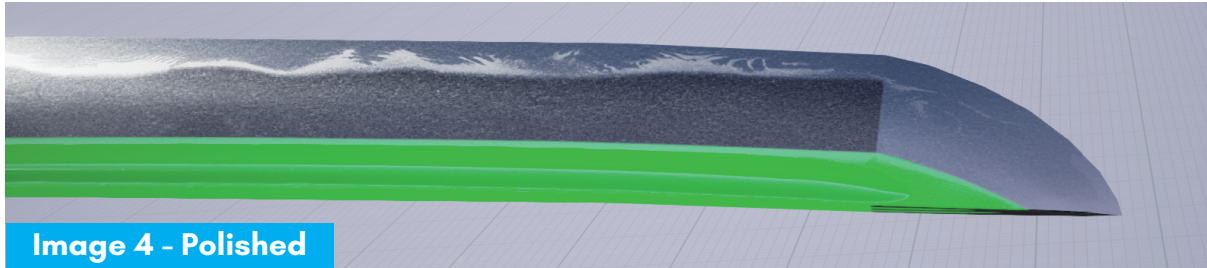- Stain Roughness (Carbon)

Color / Roughness

You can choose two colors to assign according to the 'Jigane' mask. Difference of roughness is also adjustable.
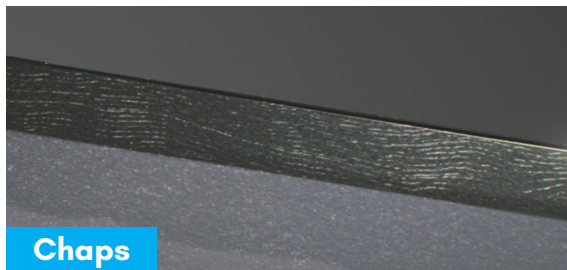
Clear Coat

It changes clear coat value of the stained surface separately.

Process 3 – MF_KatanaPolished

Image 4 – Polished

In this process, we polish the green area of the image 4. It is not uncommon that the polished surface becomes mirrorlike.

Chaps

Color / Roughness

Color and roughness of polishing area are changable. The lowest roughness within the blade is typical.

Chaps

Chaps are fine scratches covering polishing area. It is lined along the pattern of Jigane. To make the surface be chapped more, set higher opacity and roughness.

Parameters

MF_Polished /
        Chaps Opacity
        Chaps Roughness
        Polish ClearCoat
        Polish Color
        Polish Opacity
        Polish Roughness

Sub Process 1 – MF_Katana_Glitter

Glitter

This is the process of finishing how the blade looks. But, there is no adjustable parameters exposed in material instance.
It should be understood that glitter like color aberration is brought by this.

Sub Process 2 – MF_Katana_Tang

Sword Tang

Parameters

MF_Stained /

      Disable Tang

      Tang Color (Burn)

      Tang Color (Multiply)

Color

Color adjusting for tang is a little unusual. Use burn mixing to keep high saturation, or use multiply mixing, saturation is tend to decrease.

Disable Tang

Tang is unneeded part unless you disassemble the sword. There is an option to disable this completely for an optimization.

Sheath

Material of sheath has a procedural mask system which provides 5 patterns. It divides the surface into primary and secondary area. And, multiple masks enabled will be summed up as secondary area.

Parameters

Mask /

Mask Offset
Use Crest
Use Crest 2
Use Gold As Primary
Use Gold As Secondary
Use Gold Crest
Use Ishimeji Paint
Use Secondary
Use Wood

Mask Offset

It is shared parameter among all patterns to shift position.

Use Crest

Printing family crest. 20 crest masks are ready. Change it from Texture parameter.

Use Gold

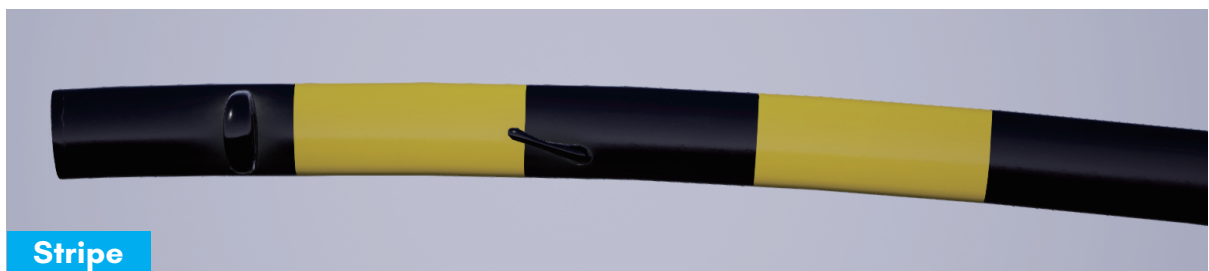It is able to use gold as specific area.

Use Ishimeji Paint

The whole area turns into stone like coating except crests.

Use Wood

To use wood, turn this on with designating the area by blue channel of mask input.

Pattern 1 – Stripe
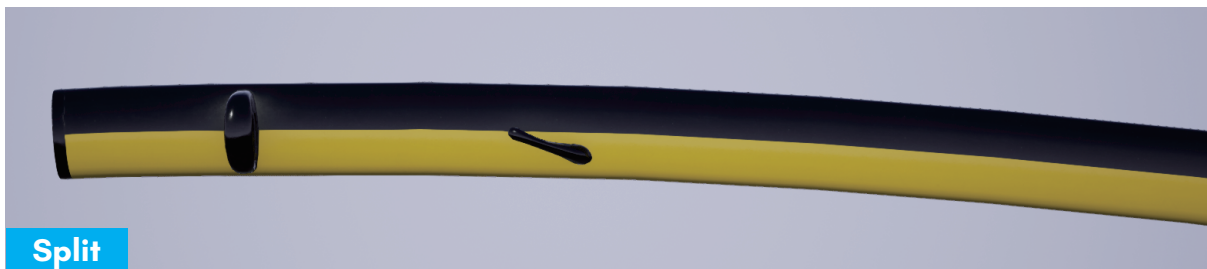

Stripe

Mask Stripe /

Stripe Ratio

Stripe Width

Ratio

It changes the ratio between primary and secondary area.

Width

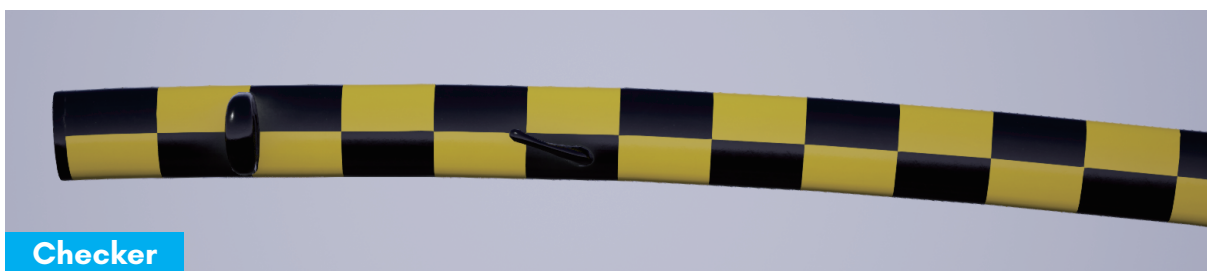It changes the width of the stripe pitch.

Pattern 2 – Split

Split

Mask Split /

Split Invert

Invert

It switches primary area upside down.

Pattern 3 – Checker

Checker

Mask Checker /

Checker Width

Width

It changes the width of square.

Pattern 4 – Spiral

Spiral

Parameters

Mask Spiral /
　　　Spiral Direction
　　　Spiral Multi Line
　　　Spiral Ratio
　　　Spiral Width

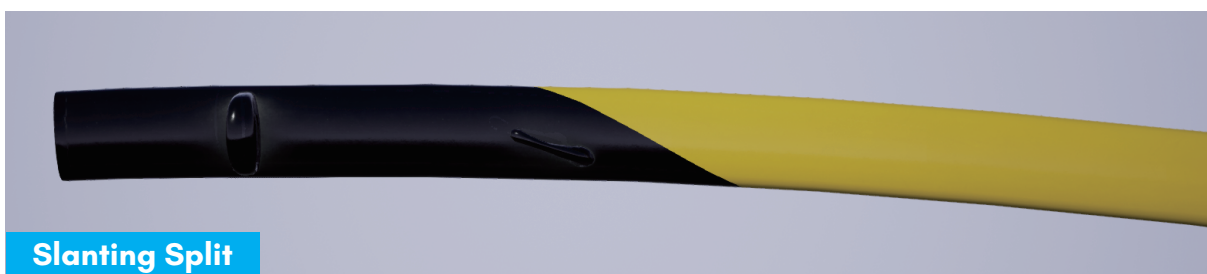## Direction

It switches the direction of the line twines.

Multi Line

3 lines of different thickness twine around the sheath instead of one line.

Width

It changes the pitch of spiral.

Pattern 5 – Slanting Split

Slanting Split

Parameters

Mask Slanting Split /
　　　Slanting Split Angle
　　　Slanting Split Invert
　　　Slanting Split Position

Angle
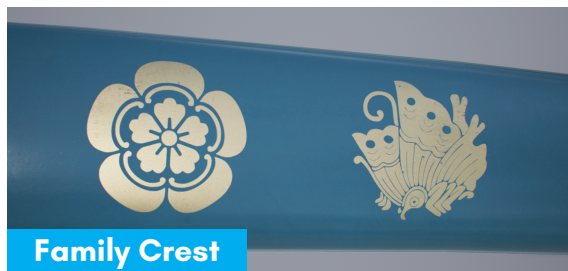
It changes the angle of the border.

Position

It changes the position of the border.

Family Crest

Family Crest

Parameters

Mask /
- Crest 1 Position Y
- Crest 1 Scale
- Crest 2 Position X
- Crest 2 Position Y
- Crest 2 Scale
- Crest Flip Y
- Crest Position X
- Crest Spacing

Spacing

It changes the distance between each crests repeating.

Position X

Position X shifts whole crest.
Position X of crest 2 determine its position relatively to crest 1.

Position Y (1, 2)

They shift the crest 1 and 2 individually.

Flip Y

In case of printing crests on sheath of 'Tachi' (riding swords), flipping is necessary to match direction with the sheath.

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Master Material List

The variation for each sword parts are material instances of master material. To replace one of those, it is necessary to confirm the parent of it.

This list shows which mesh part is enable to be assigned for every material.

For Multiple Swords

M_Blade
- All Swords

M_Fittings_Generic
- Tantou 1
- Uchigatana 1, 2
- Wakizashi 1

M_LeatherHandle_Generic
- Uchigatana 1, 2
- Wakizashi 1

M_Sheath_Generic
- All Sheaths

M_Sheath_Nashiji
- All Sheaths

M_SheathFittings_Generic
- Tantou 1
- Uchigatana 1, 2
- Wakizashi 1

M_StringHandle_Generic
- Tachi 1, 2
- Tantou 1
- Uchigatana_3
  (Use Mask 2B)

For Single Sword

M_Otachi_1_Fittings
- Handle Fittings
- Sheath Fittings

M_Otachi_1_Handle
- Handle

M_Tachi_1_Fittings
- Handle Fittings
- Sheath Fittings

M_Tachi_2_Fittings
- Handle Fittings
- Sheath Fittings

M_Uchigatana_3_Fittings1
- Handle Fitting
- Sheath Fittings

M_Uchigatana_3_Fittings2
- Sheath Fittings

M_Uchigatana_3_Gadgets
- Spike
- Knife

M_Uchigatana_3_Handle
- Handle

~ Bunno pen ~