



**LongPack**  
**GAMES & TOYS**

# **Components Artwork Guideline**

## **Purpose**

The design specification document for game accessories is mainly aimed at reducing communication costs between designers and manufacturers, as well as assisting designers in understanding various details and requirements of conventional manufacturing processes for accessories, which helps to accelerate the overall development and design progress.

## **Scope**

This document currently covers wood/regular injection-molded parts, plastic models, and dice.

## **Content**

Mainly covers specifications and recommendations for "file naming," "file formats," "design details," and "surface printing file requirements" in the early stages. For specific recommendations, please refer to the following.

## **File Naming Convention**

**Project Name - Component Type - Component Name - Version Number**

*e.g. The Witcher - wooden - chicken 1 - 3*

## **File Formats**

For different types of components and surface printing, it is necessary to use standardized file formats. The main formats are divided into two categories:

- I . 3D Formats: STEP, OBJ, STL
- II . 2D Formats: PDF, AI

## **Design Guidelines**

Based on your design requirements and practical production needs, LongPack offers some design suggestions. These recommendations aim to achieve your design objectives while optimizing costs, enabling better cost control and giving your game a competitive edge in the market. However, if any of these suggestions conflict with the unique characteristics of your product, please inform us. We can explore alternative methods to meet your requirements, although it may affect the price advantage.

## LongPack Components Artwork Guideline

<b>1 · Wooden Components</b>	<b>1</b>	<b>2.5 · Heat Transfer Printing</b>	<b>2</b>
<b>1.1 · File Naming</b>	<b>1</b>	<b>3 · Injection Molded Components</b>	<b>3</b>
<b>1.2 · Product Files</b>	<b>1</b>	<b>3.1 · File Naming</b>	<b>3</b>
1.2.1 · File Formats	1	<b>3.2 · File Formats</b>	<b>3</b>
1.2.2 · Design Details	1	<b>3.3 · Design Requirements</b>	<b>3</b>
<b>1.3 · Printing Files</b>	<b>1</b>	<b>3.4 · DFM Report Explanation</b>	<b>3</b>
1.3.1 · File Formats	1	<b>4 · Miniature</b>	<b>4</b>
1.3.2 · Printing File Requirements	1	<b>4.1 · File Naming</b>	<b>4</b>
1.3.2.1 · Screen Printing	1	<b>4.2 · File Formats</b>	<b>4</b>
1.3.2.2 · Heat Transfer Printing	1	<b>4.3 · Design Detail Requirements</b>	<b>4</b>
<b>2 · Dice</b>	<b>2</b>	<b>4.4 · The Process Of Modifying The Graphics</b>	<b>4</b>
<b>2.1 · File Naming</b>	<b>2</b>	<b>4.5 · Miniature Model Modification Method</b>	<b>4</b>
<b>2.2 · Product Files</b>	<b>2</b>		
<b>2.3 · Engraved Dice Pattern Design Requirements</b>	<b>2</b>		
<b>2.4 · Silk Screen Dice Printing File Requirements</b>	<b>2</b>		




## 1.1 · File Naming



Project Name - Component Type - Component Name - Version Number

### Example\*

 The Witcher - wooden - chicken 1 - V3.ai

The Witcher - wooden - chicken 1 - V3

Project Name

Component Type

Component Name

Version Number





# 1 Wooden Components

# 1.2 Product Files

## 1.2.1 · File Formats


a) AI/PDF vector files are the preferred and commonly used formats for wooden components.

### Example\*

 Wooden.ai  
 Wooden.pdf

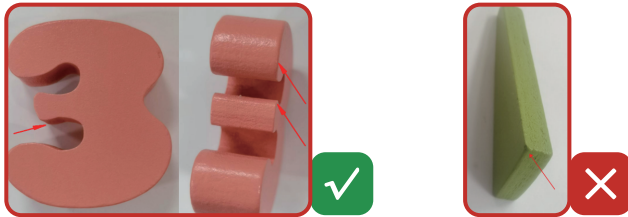
b) For wooden files with 3D effects, STEP format is recommended as the preferred file format

### Example\*

 wooden.step

## 1.2.2 • Design Details

a) For products with age restrictions (Europe: 14 and below, USA: 8 and below), it is required to reduce sharp edges and increase the roundness of edges and corners.



b) For surfaces that require printing, it is recommended to ensure a resolution of 300ppi or higher. It is also advised to keep the printed patterns at least 1mm away from the edges.



c) To facilitate the production of qualified samples efficiently, it is recommended to include surface colors, effects, and functional requirements within the design files.

d) If there are specific material requirements, it is advised to make special annotations to indicate them.

e) For areas of wood with a thickness less than 1.5mm, it is suggested to add thickness to ensure ease of mass production.



# 1.3

## Printing Files

### 1.3.1 • File Formats

1.3.1.1 Printing File Format Recommendation: PDF/AI



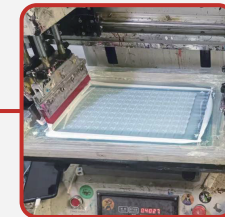
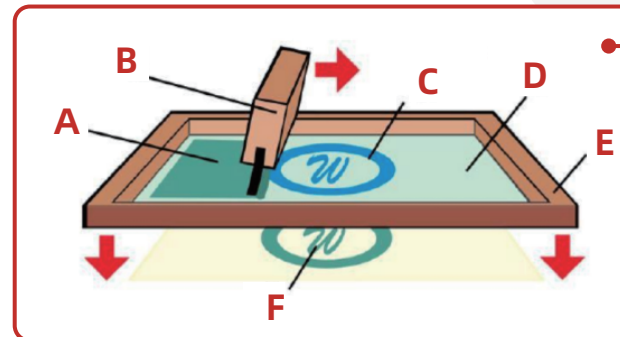
or



### 1.3.2 • Printing File Requirements

1.3.2.1 Screen Printing

- Pantone color codes for the artwork is required.
- If the product's base color is black and the surface printing color is white, it is more likely to show the base color. The same applies vice versa.
- Introduction to screen printing.



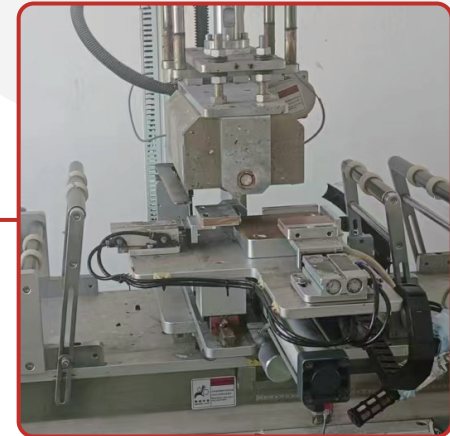
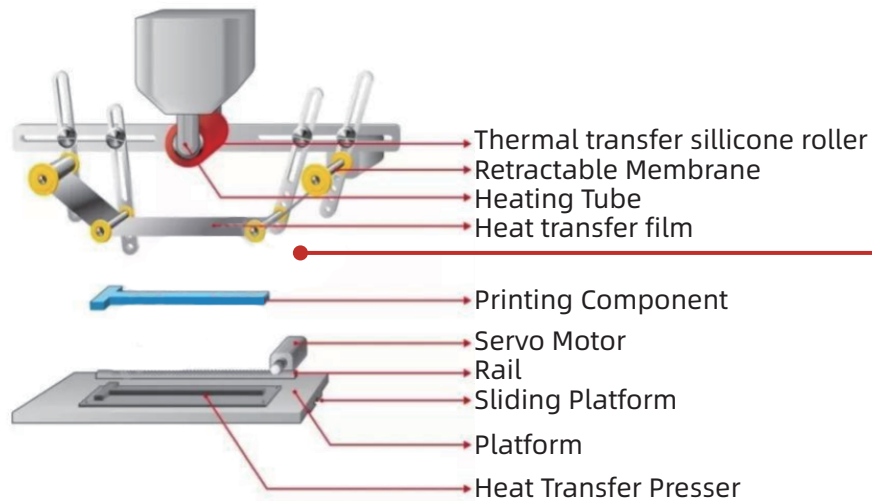
- A. Ink
- B. Brush
- C. Pattern Zone
- D. Non-pattern Zone
- E. Screen Frame
- F. Colouring Surface

- Advantages: Screen printing offers relatively lower prices compared to heat transfer printing, lower sampling costs, and simpler processes. It provides cost advantages in terms of development.
- Disadvantages: It is limited to single-color designs.



### 1.3.2.2 • Heat Transfer Printing

- Image resolution should be 300 dpi or higher.
- Heat transfer printing is primarily used for products with multi-color designs.
- Processing costs for heat transfer printing are relatively higher compared to screen printing.
- Initial sampling costs for heat transfer printing are relatively expensive.
- Introduction to heat transfer printing.



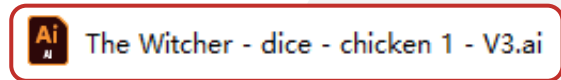
# 2 Dice

## 2.1 · File Naming



Project Name - Component Type - Component Name - Version Number

### Example\*



The Witcher - dice - chicken 1 - V3

Project Name

Component Type

Component Name

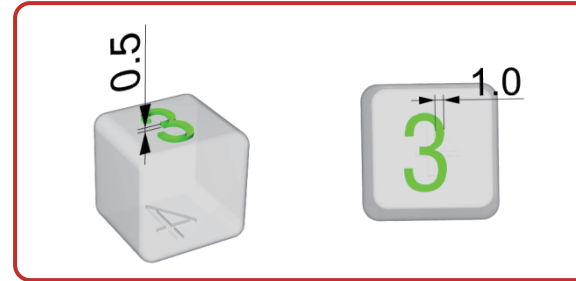
Version Number

## 2.2. · Product Files

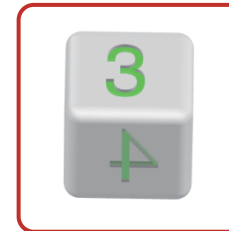
- a ) It is recommended for customers to provide 2D files in AI or PDF format, especially for specialty dice with unique design effects.
- b ) It is recommended for customers to provide 3D files in STL or STP format.



a) For engraved dice, it is recommended to have a groove depth of 0.4-0.6mm for the engraved patterns or numbers. The groove width is suggested to be greater than 0.6mm.



b) For 3D numerical designs on dice, it is suggested to have the numbers following in the patterns of 1 against 6, 5 against 2 and 3 against 4 (D6). This ensures equal probabilities and fairness in gameplay, excluding cases where the dice have non-numerical functions.

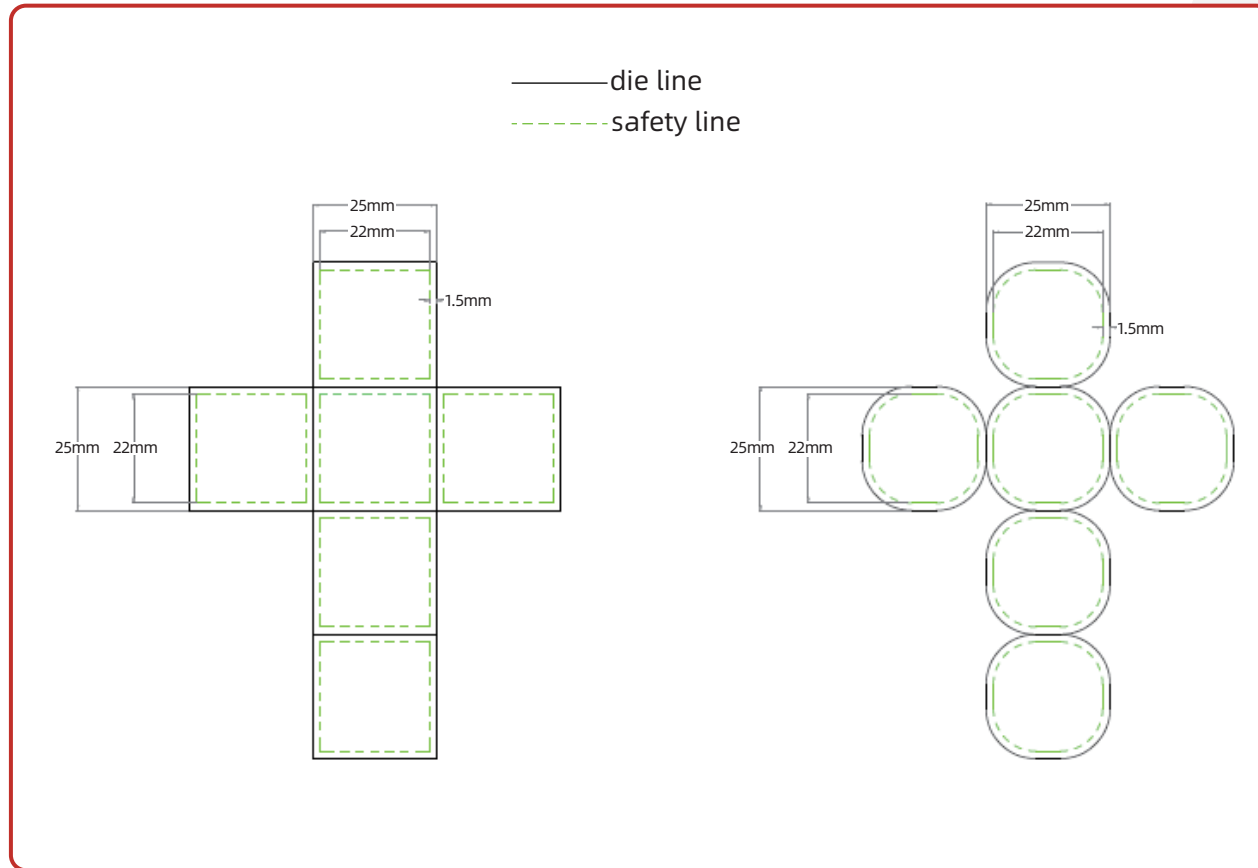


## 2.3

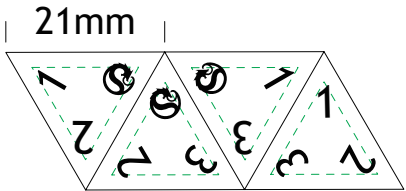


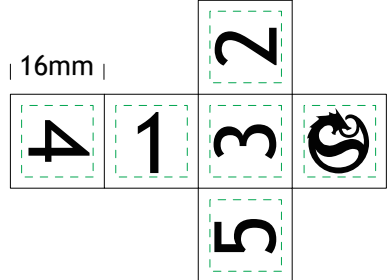


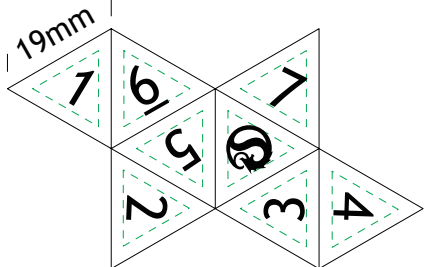


### Engraved Dice Pattern Design Requirements



c) For silk screen or heat transfer printed dice, it is strongly recommended to keep the distance between the pattern and the edge of the flat surface at 1mm, as shown in the reference image with a green printing area.



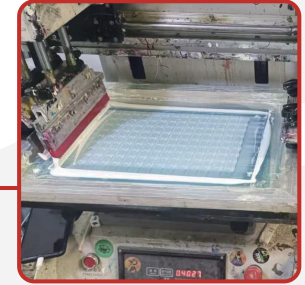
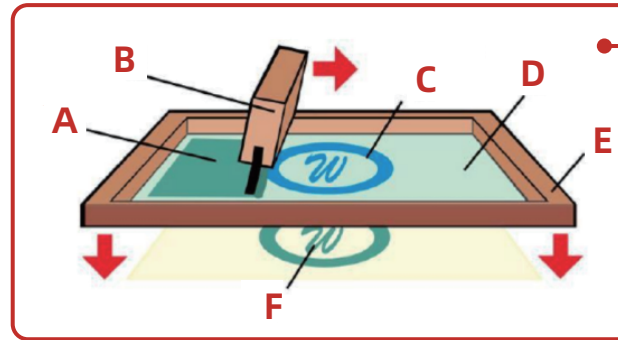
d) Safe printing and engraving distances illustrations and photos.

<p>D4</p>	 <p>21mm</p>		
<p>D6</p>	 <p>16mm</p>		
<p>D8</p>	 <p>19mm</p>		

D10			
D12			
D20			

e) In the rare case where 2D or 3D files are not available, LongPack is capable of providing design of your dice based on your photos or sketches and/or special function description subjected to extra cost.

- Pantone color codes for the artwork is required.
- If the product's base color is black and the surface printing color is white, it is more likely to show the base color. The same applies vice versa.
- Introduction to screen printing.



- A. Ink
- B. Brush
- C. Pattern Zone
- D. Non-pattern Zone
- E. Screen Frame
- F. Colouring Surface

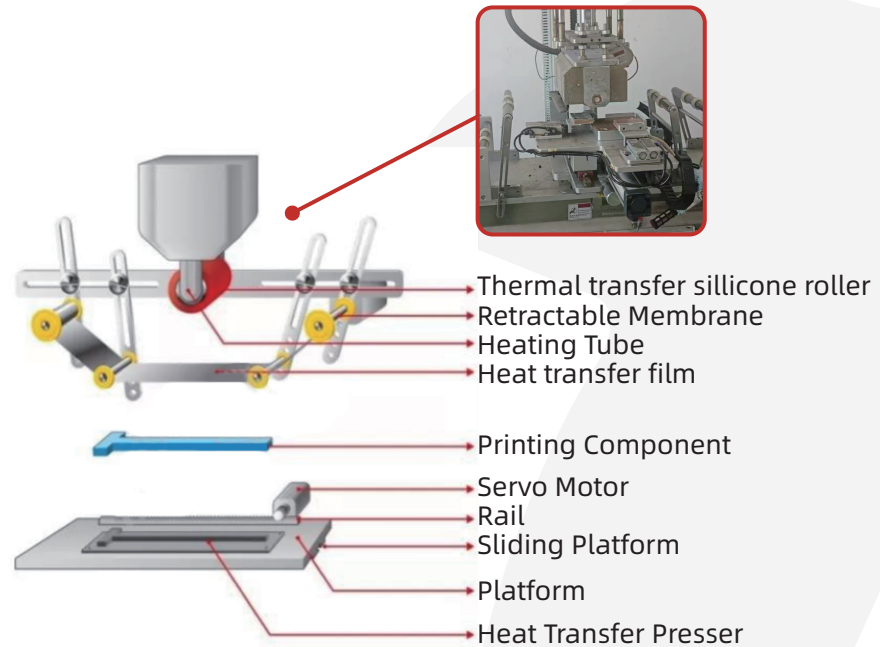
## 2.4 Silk Screen Dice Printing File Requirements

- Advantages: Screen printing offers relatively lower prices compared to heat transfer printing, lower sampling costs, and simpler processes. It provides cost advantages in terms of development.
- Disadvantages: It is limited to single-color designs.

- Image resolution should be 300 dpi or higher.
- Heat transfer printing is primarily used for products with multi-color designs.
- Processing costs for heat transfer printing are relatively higher compared to screen printing.
- Initial sampling costs for heat transfer printing are relatively expensive.
- Introduction to heat transfer printing.

## 2.5

### Heat Transfer Printing





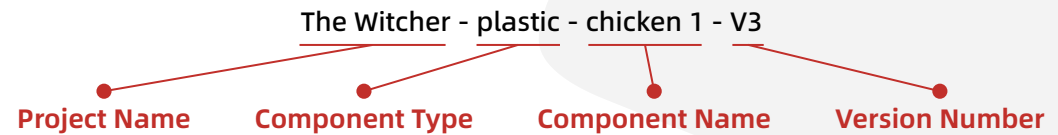
# 3 Injection Molded Components

## 3.1 · File Naming



Project Name - Component Type - Component Name - Version Number

### Example\*



## 3.2. · File Formats

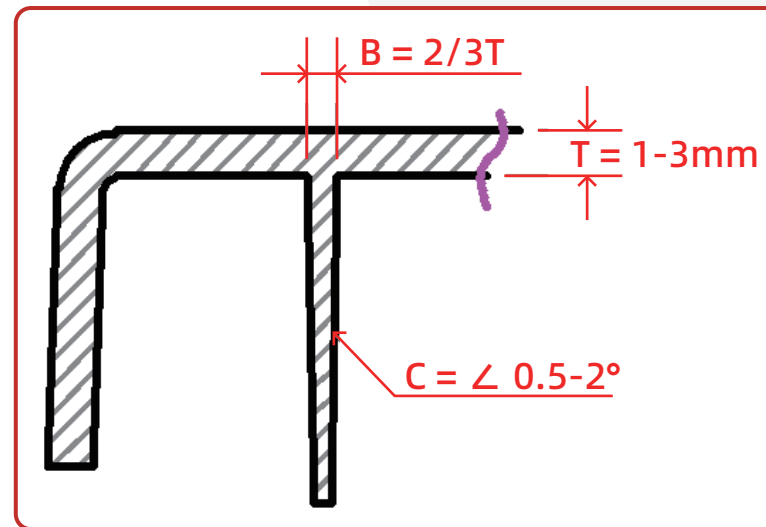
STEP/STL/OBG

- a ) STEP: Files in STEP format can be used directly.
- b ) STL/OBG: These files need to be converted to STEP format.

## 3.3

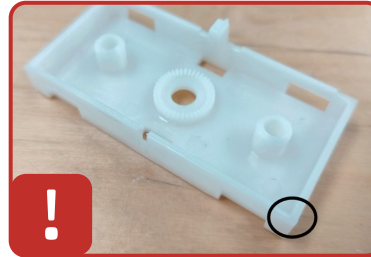
## Design Requirements

- a) Thickness:  
It is recommended to have a wall thickness of 1-3mm for the product, based on its specific requirements and considerations. *e.g. T*
- b) Draft Angle:  
It is recommended to have a draft angle of  $\angle 0.5-2^\circ$  for easy mold release, considering the specific requirements of the product. *e.g. C*
- c) Reinforcement Ribs:  
It is recommended to include reinforcement ribs with a thickness of two-thirds the size of the end face. *e.g. B*



## d) Sharp Points and Edges:

For products targeting ages 14 and below, it is advised to avoid sharp points and edges in the design, as they may not pass safety regulations.



## e) Surface Logo or Characters:

Minimum Gap Width between character is 0.5mm *e.g. F*

Optimal Font Height is between 0.3mm to 0.5mm, preferably embossed *e.g. G*

Minimum Font Width is 0.3mm *e.g. H*



If there are any special features or gameplay instructions, please inform us in writing.

This report is mainly aimed at pre-production confirmation of the product, providing an early control report on design requirements and factors conducive to production. It includes the following points:

a) Gate Location: Confirming the injection method and location of the product based on appearance requirements and product quality considerations.

# 3.4 DFM Report Explanation

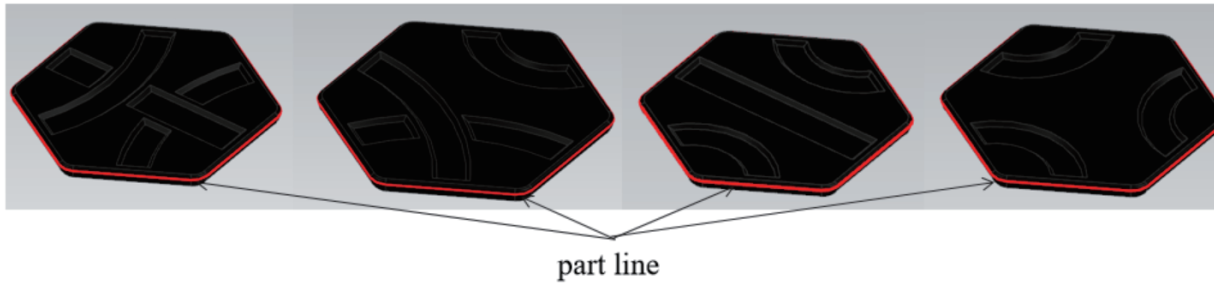
	Gate Location   进胶	DFM REPORT						
		<table border="1"> <tr> <td data-bbox="1561 532 1790 551">(Issue)问题点:</td> </tr> <tr> <td data-bbox="1561 551 1790 707"></td> </tr> <tr> <td data-bbox="1561 707 1790 727">(Proposal)建议:</td> </tr> <tr> <td data-bbox="1561 727 1790 911">                     The large sprue edge is filled with glue, and the product is polished to leave no sprue residue.                 </td> </tr> <tr> <td data-bbox="1561 911 1790 930">(Client Reply)客户回复:</td> </tr> <tr> <td data-bbox="1561 930 1790 1094"></td> </tr> </table>	(Issue)问题点:		(Proposal)建议:	The large sprue edge is filled with glue, and the product is polished to leave no sprue residue.	(Client Reply)客户回复:	
(Issue)问题点:								
(Proposal)建议:								
The large sprue edge is filled with glue, and the product is polished to leave no sprue residue.								
(Client Reply)客户回复:								
LongPack DFM Report 1								

b) Part Line: Confirming the parting line based on appearance requirements and subsequent assembly positions.



Part Line | 分型线

DFM REPORT



(Issue)问题点:

(Proposal)建议:

The red line will be the part line.  
Please confirm

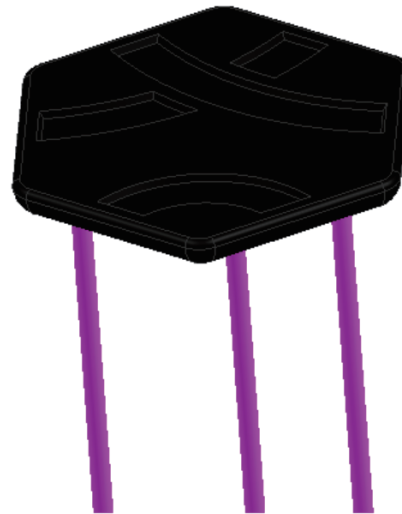
(Client Reply)客户回复:

c) Ejector Pin Mark: Preventing quality issues in the product due to mold design problems with ejection.



Ejector Pin Mark | 顶出

DFM REPORT



(Issue)问题点:
(Proposal)建议: Pink mark is 3-C2.0mm
(Client Reply)客户回复:

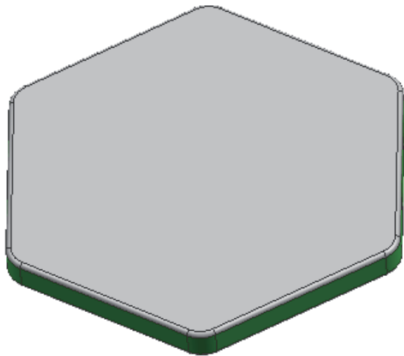
d) Draft Angle: Confirming the draft angle to ensure proper mold release.



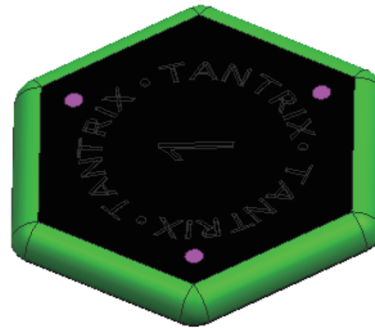
Draft Angle | 拔模角

DFM REPORT

Raw image



Modified image





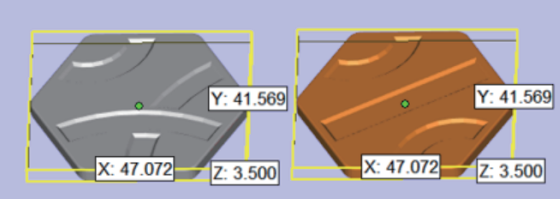
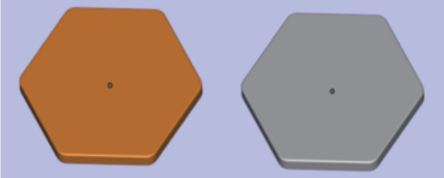
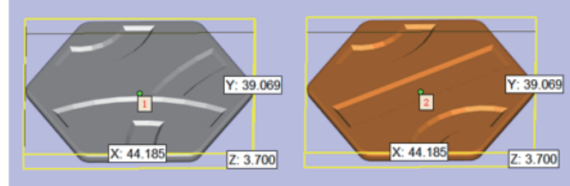
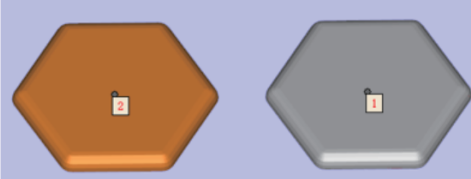
(Issue)问题点:

(Proposal)建议:

Round the green side.

(Client Reply)客户回复:

e) Critical Dimensions: Verifying the critical dimensions of the product.

LongPack GAMES		Critical Dimensions   关键尺寸		DFM REPORT		
SAMPLE					<p><b>(Issue)问题点:</b></p> <hr/> <p><b>(Proposal)建议:</b></p> <p>①、Recommendation: Adjust the dimensions to match the customer sample. The product dimensions will be close to the sample after polishing.</p> <p>Modified file:                      Length: 44.19mm                      Width: 38.5mm                      Height: 3.7mm</p> <p>②、Recommendation: Round the bottom corner with a radius of 3mm. This will help the product release from the mold.</p> <p><b>(Client Reply)客户回复:</b></p> <hr/>	
	CLIENT					
		Modified				

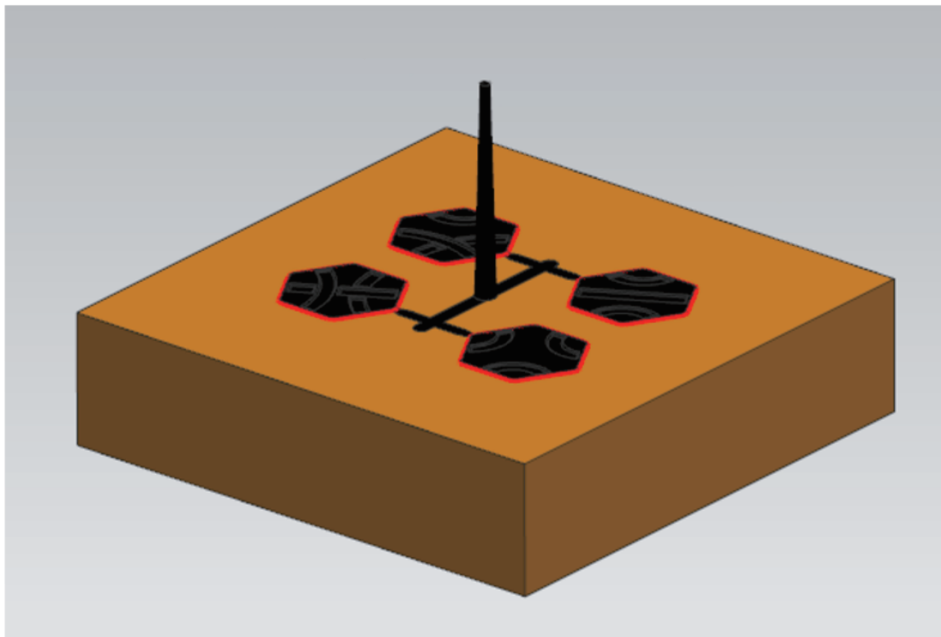


f ) Mold Info & Layout: Confirming the arrangement of molds.



Mold Info & Layout | 模具信息及布局

DFM REPORT



(Issue)问题点:

(Proposal)建议:

four holes in one mold

(Client Reply)客户回复:

# 4 Miniature

## 4.1 · File Naming



Project Name - Component Type - Component Name - Version Number

### Example\*



## 4.2. · File Formats

- a ) For PVC soft vinyl figures, the preferred file format is STL (Standard Tessellation Language).
- b ) For hard plastic figures, the preferred file format is STEP (Standard for the Exchange)

## 4.3 Design Detail Requirements

The following suggestions is to be used as a cost-effective reference.

It is recommended to use one file for complete miniature instead of break down pieces. If the model requires interchangeable parts, separate files for each component should be provided.

- a) If model contains 1 million polygons, print resolution should be around 250k at max.
- b) Model is a split shell mesh, not a unified mesh.
- c) Advise-Ensure the model is correctly scaled using a print test tool such as netfabb ( a free version is available for download online)
- d) Advise-Ensure all parts are a minimum of 1.3mm thick

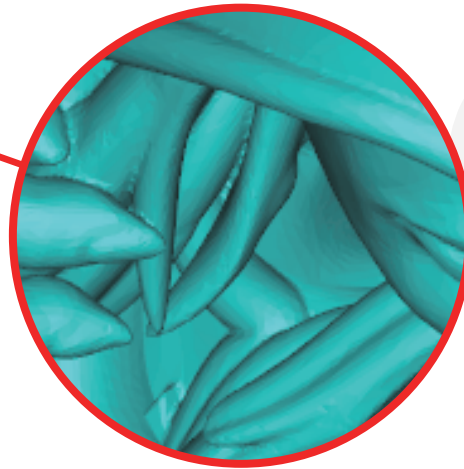
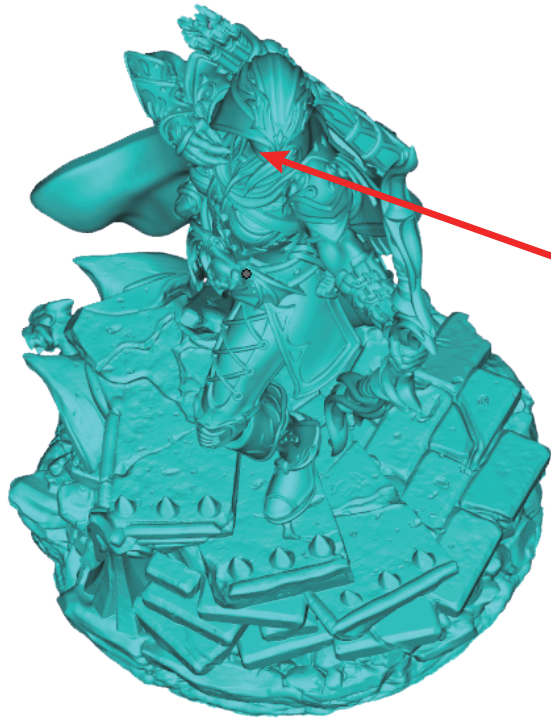


Original file from client

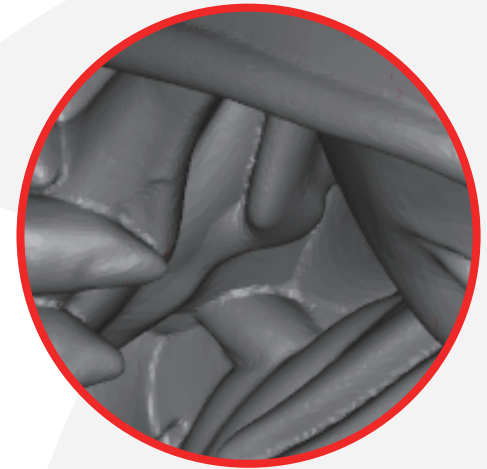


Optimized file by LongPack

e) Advise-Ensure there are no air gaps or hollow areas within the models. Deleting inner faces and only using solids is essential.

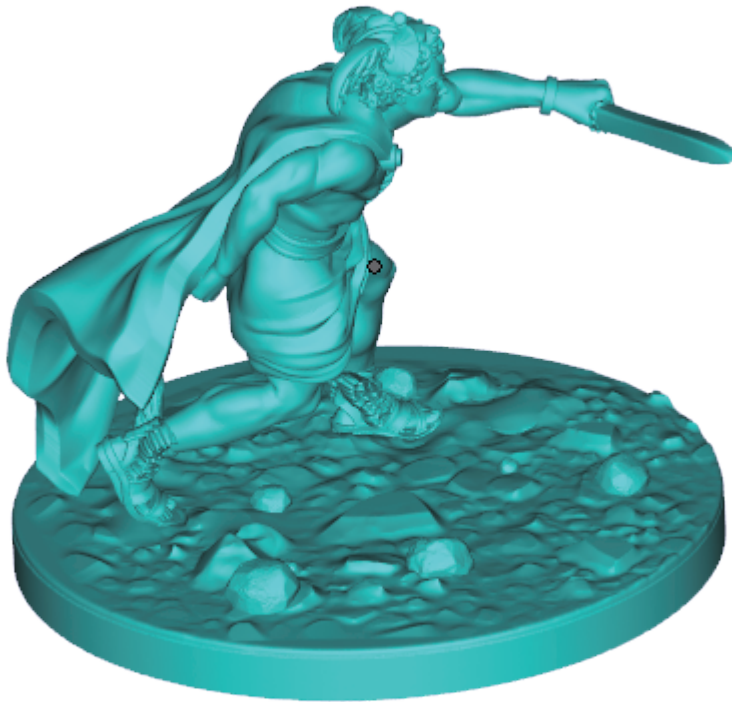


Original file from client

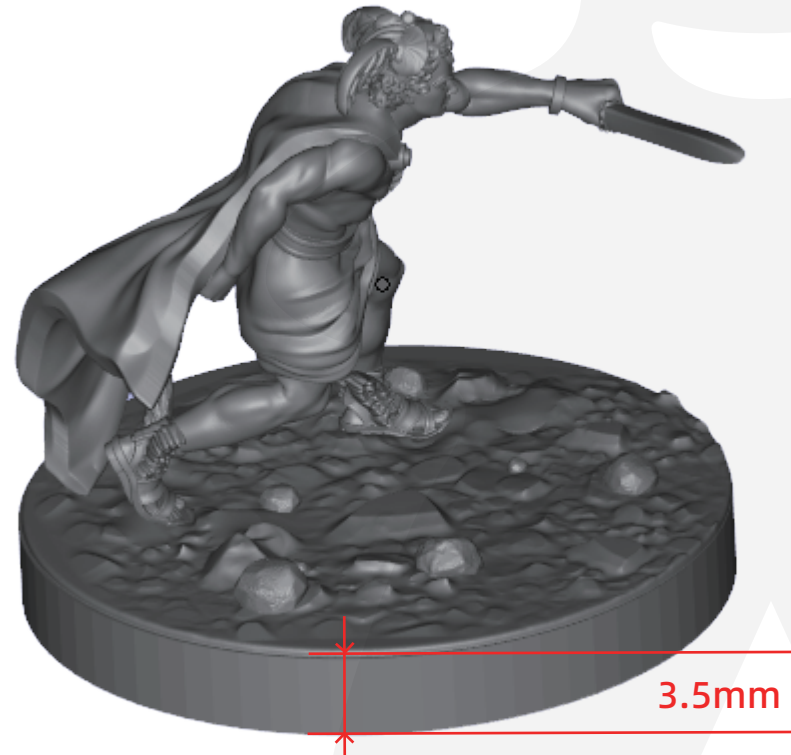


Optimized file by LongPack

f ) For miniatures with a base, the thickness of the base should be within 2.8-3.5mm.

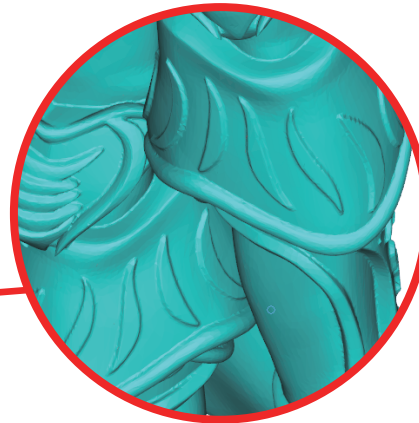
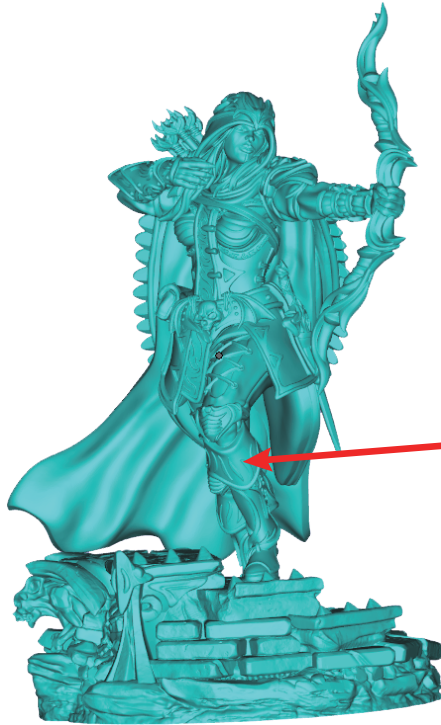


Original file from client

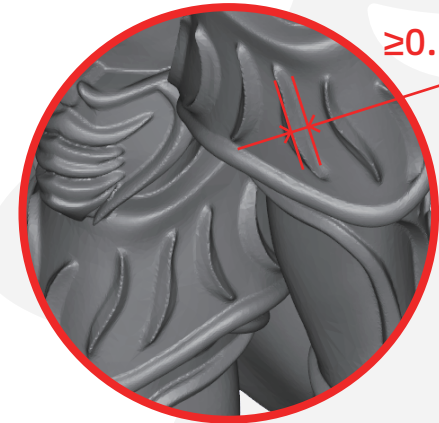


Optimized file by LongPack

g) For areas of the miniature with textures, ensure that the minimum depth of the textures is 0.25mm.



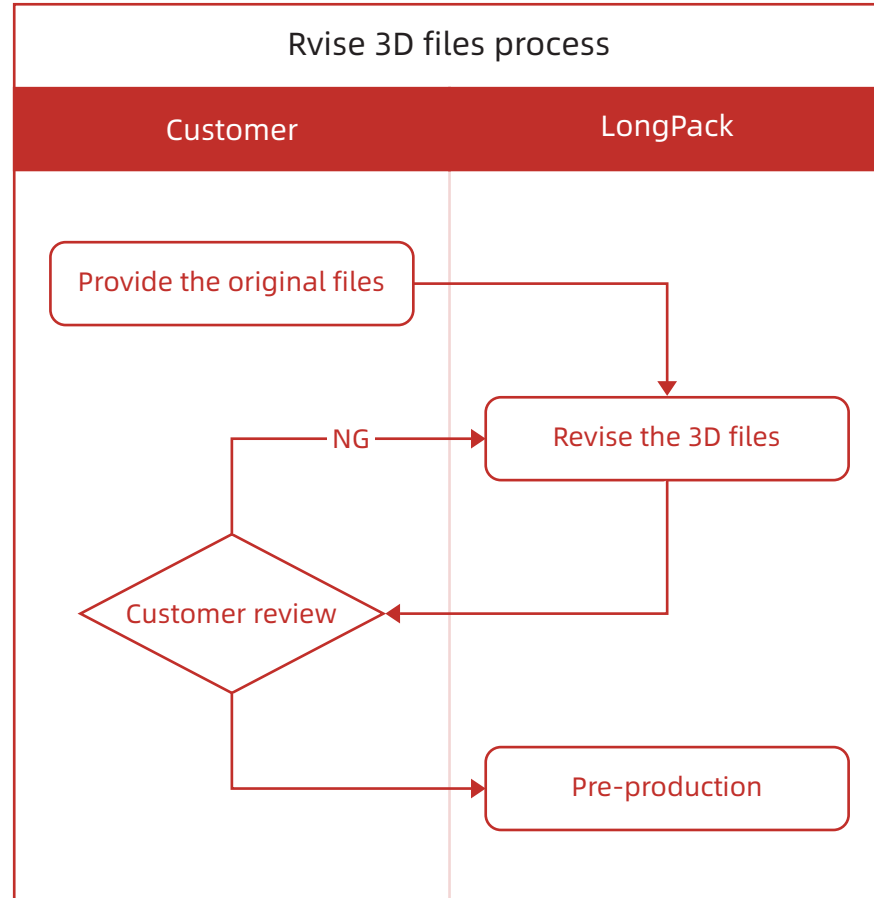
Original file from client



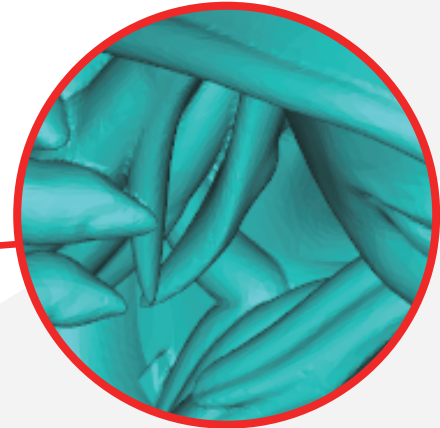
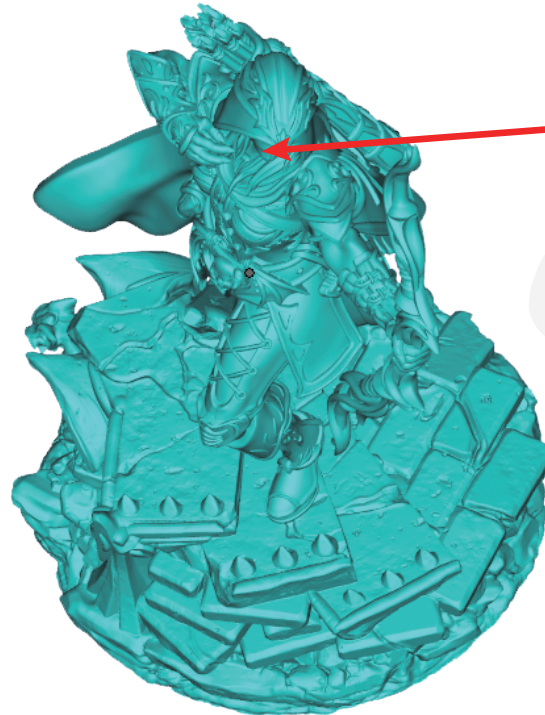
Optimized file by LongPack

h) If your miniature requires painting, the minimum height of miniature is 25mm to reach the best effect. If the miniature is within 25-35mm, simplify the colors in areas such as the face, earrings, shoelaces, buttons, and badges, as these areas tend to have smaller relative sizes, which increases the complexity of the process and raises the cost. If it is necessary, we will assist you accordingly.

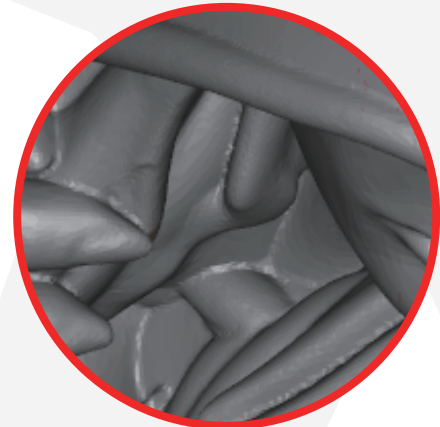
**4.4**  
**The Process Of  
Modifying  
The Graphics**



a) Fill with glue



Original file from client



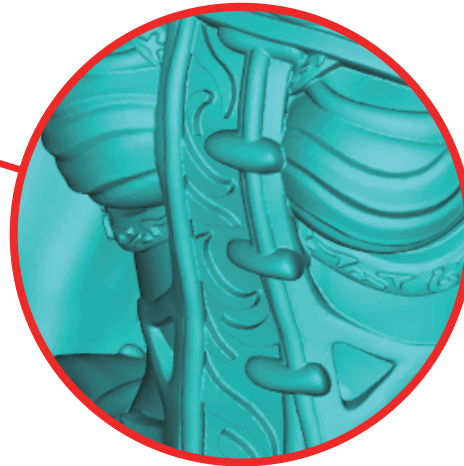
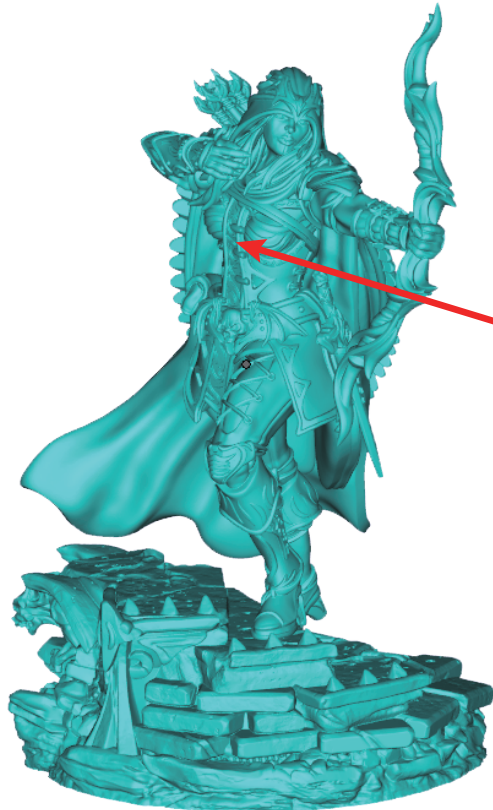
Optimized file by LongPack

# 4.5

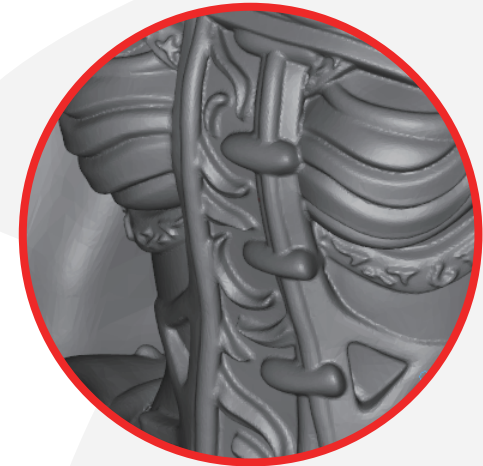
## Miniature Model Modification Method



b) Deepening details

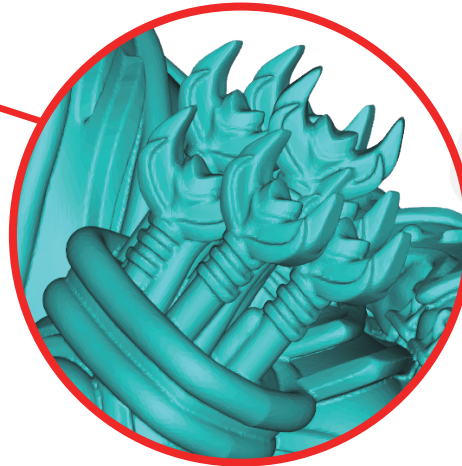
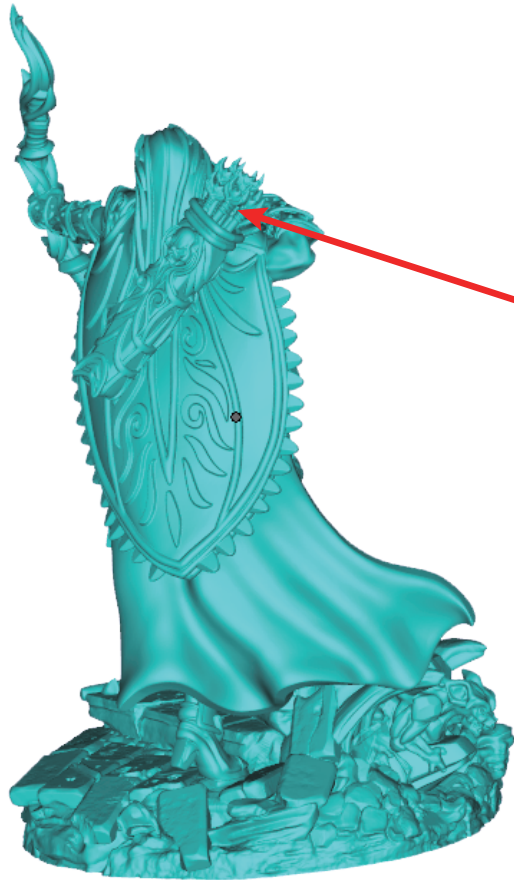


Original file from client

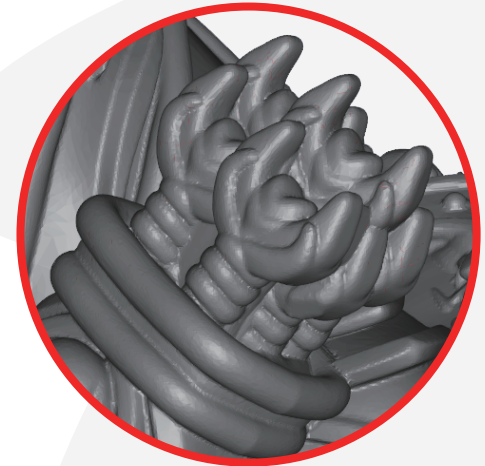


Optimized file by LongPack

c) Widen specific parts

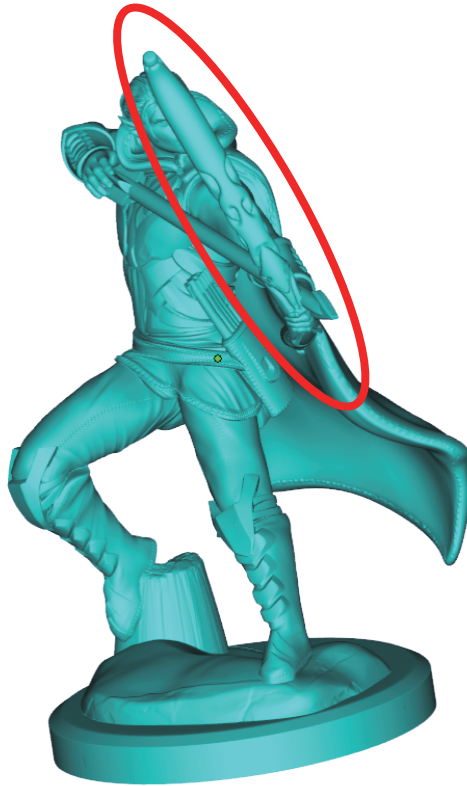


Original file from client

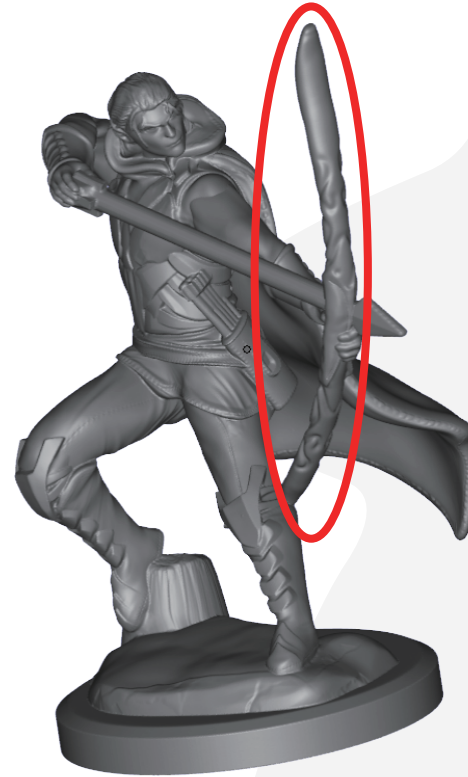


Optimized file by LongPack

d) Adjust pose

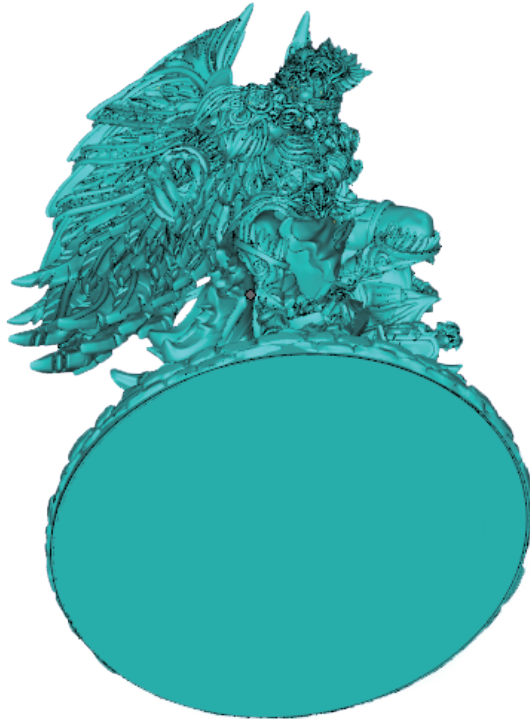


Original file from client

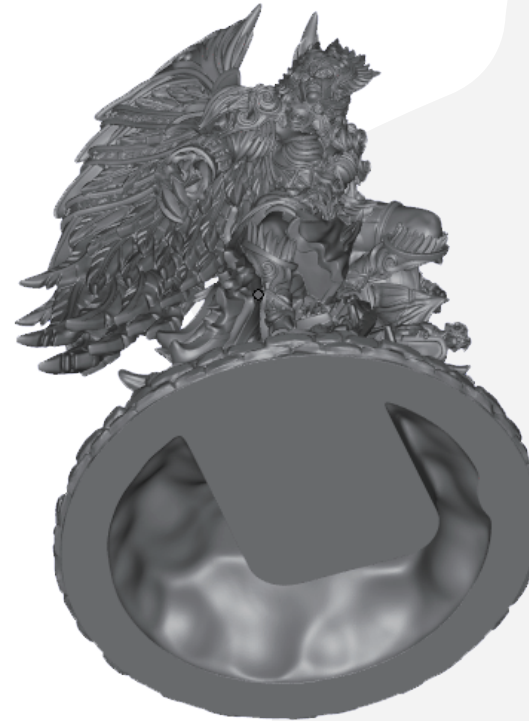


Optimized file by LongPack

e) Remove excess glue

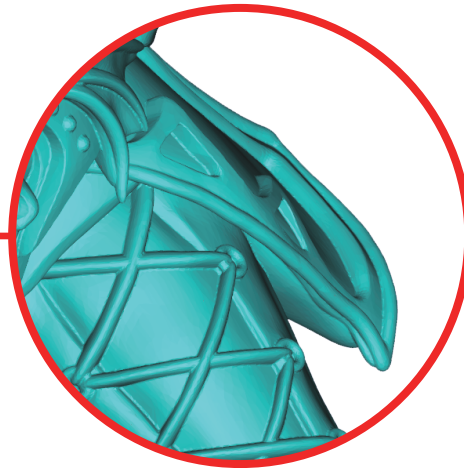


Original file from client

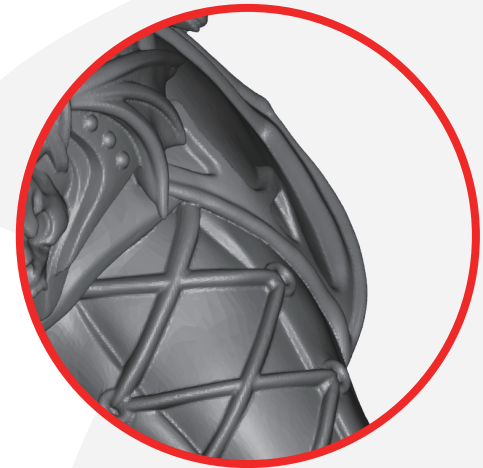


Optimized file by LongPack

f ) Apply decals to specific areas (e.g., cloak and body, etc.)

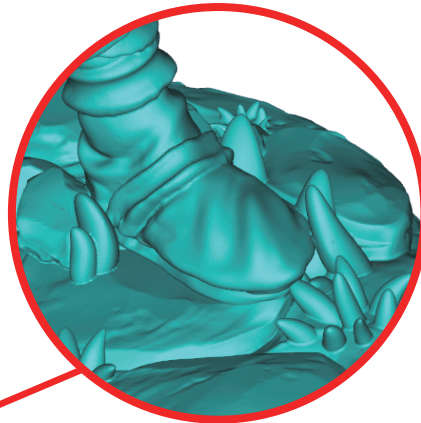


Original file from client

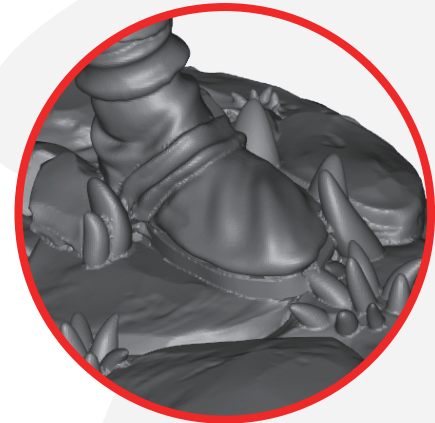


Optimized file by LongPack

g) Increase height of feet (for a smoother base surface, allowing for excess material)

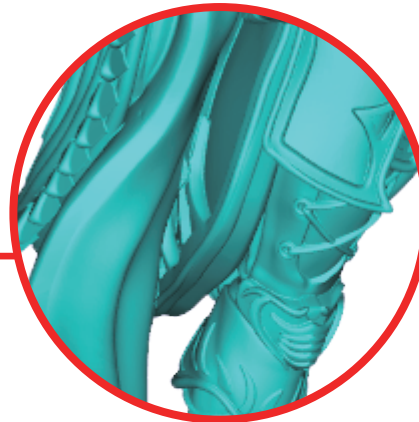


Original file from client

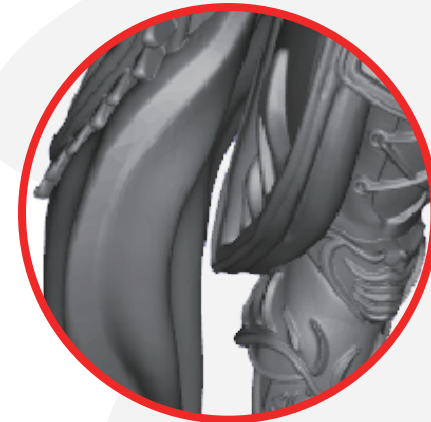


Optimized file by LongPack

h) Unfold specific areas (e.g., cloak to body; cloak to legs, etc.)



Original file from client



Optimized file by LongPack

# LongPack GAMES & TOYS

Do you need help?

[www.longpackgames.com](http://www.longpackgames.com)

[info@longpack.com](mailto:info@longpack.com)