

MIMAKI 3DUJ-553

Full-Color 3D Printing File Preparation Guide

How to prepare and send files for printing

Start here

For full-color work, send a 3MF or a complete OBJ package. If the design includes clear regions, export those regions as separate, pre-aligned files from the colored geometry.



1. Submission checklist

A complete submission helps preserve geometry, color, scale, and the intended relationship between clear and colored features.

Check	Requirement
Preferred format	3MF, or OBJ with its MTL and every texture image
Color	Textures or vertex colors are included and display correctly
Geometry	Closed, watertight, manifold meshes with outward-facing normals
Scale	Exported at final size with units clearly identified
Clear regions	Separate from colored geometry and pre-aligned
Multiple files	Same origin, scale, units, orientation, and coordinate space
Delivery	All related files placed together in one ZIP folder

Important

Do not submit only an OBJ if color comes from textures. Without the MTL and texture images, the model may open white or black.

Include with the upload

- Project or part name
- Desired finished dimensions
- Quantity
- A screenshot or rendering of the intended appearance
- Any areas that must be clear, translucent, opaque, or color-critical

2. File formats and color data

Full-color printing requires surface geometry and the color information used by the model.

Format	Use	What to send	Notes
3MF	Preferred	One .3mf file	Best when color and textures are embedded.
OBJ	Preferred	OBJ + MTL + textures	Keep every related file together.
PLY / WRL	By review	Model and linked textures	Verify color before submission.
STL	Limited	One STL per region	Geometry only. Not for textured full-color surfaces.

Texture and color requirements

- UV-map textures to the intended surfaces. Avoid overlapping UVs unless deliberate.
- Use RGB texture images. Common supported types include JPEG, TIFF, PNG, and BMP.
- Use enough texture resolution for the physical model size and expected detail.
- Open the final export in an independent viewer and confirm that the textures appear correctly.
- For OBJ submissions, keep the OBJ, MTL, and texture files together and do not break their file references.

Color expectation

Screens, lighting, texture quality, surface finish, clear material, and printing can affect appearance. Include a reference image and identify critical colors.

File names

Use short names with letters, numbers, hyphens, and underscores. Identify each component by treatment, for example: Project_COLOR.3mf, Project_CLEAR_SHELL.stl.

3. Geometry and design requirements

Each submitted mesh, including hidden or internal components, must be printable geometry.

Requirement	Description
Closed volume	No holes, gaps, or open edges.
Manifold mesh	Each edge and face forms an unambiguous solid.
Correct normals	Surface normals face outward.
Clean geometry	No unintended self-intersections, duplicate faces, or internal shells.

Minimum feature guidance

Feature	Guideline	Design note
Walls	0.7 mm minimum; 1.0 mm preferred	Increase thickness for large or fragile geometry.
Supported wire	0.8 mm minimum	Connected at two or more points.
Unsupported wire	1.0 mm minimum	Connected at one end.
Embossed / engraved detail	0.8 mm minimum	Use roughly 1:1 width-to-depth for text.
Movable-part clearance	0.2 to 0.4 mm minimum	Increase for larger or hard-to-clean parts.
Sprues	0.8 mm minimum	Use at least two connections per loose part.

Minimum does not mean durable

Features at the minimum may print but can remain fragile during support removal and handling. Increase thickness for long, large, or load-bearing features.

Hollow colored parts

- We do not recommend hollowing clear parts.
- For colored parts, approximately 5 mm wall thickness is a useful starting point. The appropriate thickness depends on the application, model size, and geometry.
- When we hollow a colored model, support material is either intentionally trapped inside or removed through drain holes.
- Drain-hole size, quantity, and placement depend on the cavity and model. Larger or complex cavities may require larger or additional openings.

4. Multi-part and clear designs

A single printed object may be submitted as more than one mesh or file. This is especially important when clear and colored regions require different print treatments.

Why clear parts must be separate

Clear is assigned to a selectable model component, not inferred from a transparent-looking texture. If clear and colored geometry are merged into one mesh, the clear region cannot be reliably identified and processed independently.

Prepare all components together

- Export every component from the same design scene.
- Keep the same origin, scale, units, orientation, and coordinate space.
- Pre-align the files before export. We should be able to load them together without repositioning individual parts.
- Place all files for one assembly in the same ZIP folder.
- Name components by intended treatment, such as COLOR, CLEAR, or WHITE.

Condition	Preferred setup	Avoid
Fused object	Coincident mating surfaces or sufficient intentional intersection.	Tiny gaps, near-contact, or floating parts.
Separate / movable	Intentional clearance between components.	Unintended intersections or inaccessible spaces.
Clear around color	Separate, aligned clear shell and colored model.	One merged mesh for clear and color.

Clear-part guidance

- Do not hollow clear parts. Hollow clear geometry introduces internal surfaces and can trap support, reducing clarity.
- Recommended clear wall thickness: 1.5 to 2.0 mm minimum for better visual quality.
- Avoid inaccessible cavities. Trapped support in clear regions increases haze and post-processing.
- Clear prints are translucent unless specifically finished. Geometry, wall thickness, internal surfaces, support access, and finishing affect appearance.

Size and accuracy

- Maximum customer design envelope: 495 × 495 × 300 mm. Large parts will be reviewed for orientation.
- Minimum bounding box: 2.5 × 2.5 × 2.5 mm.
- General accuracy guideline: ±0.05 mm + 0.25% of the relevant dimension.

5. Before you send the files

Open the exported files in an independent viewer and complete this final check.

Final check	
☐	Correct size and units
☐	Color appears as intended
☐	No missing textures
☐	Meshes are closed, watertight, and manifold
☐	Thin features meet the guidelines
☐	Clear geometry is separate and is not hollowed
☐	Assembly files share the same origin and are pre-aligned
☐	Fused components have suitable mating geometry or overlap
☐	Hollow colored parts either trap support intentionally or include suitable drain holes
☐	All related files are included in one ZIP folder
☐	A reference image and special notes are included

Recommended ZIP structure

Example

```
ProjectName.zip
ProjectName_COLOR.obj
ProjectName_COLOR.mtl
ProjectName_Texture.png
ProjectName_CLEAR_SHELL.stl
ProjectName_Reference.jpg
ProjectName_Notes.pdf
```

File review

We review submitted files before production. If repair, texture relinking, realignment, or design changes are needed, we may contact you before the job moves forward. File review and repair cannot guarantee that features below the recommended limits will survive printing and cleaning.