A close-up photograph of various game components scattered on a light-colored surface. In the foreground, there's a stack of silver coins with a star emblem, a red car-shaped piece, a black rectangular piece, and a small, detailed metallic mini figure. In the background, there are several colorful meeples (green, yellow, red) and other game pieces. The image is framed by a white border with rounded corners.

Meeples, minis,
bits, and beyond!

V.2

COMPONENT GUIDEBOOK

INTRODUCTION

Welcome, game designers and publishers!

Within these pages, you will discover a plethora of game components for you to craft your next spectacular game. From meeples to miniatures and everything in between, Panda has you covered! We hope this guide helps you find the perfect fit for your game's budget, theme, and mechanisms.

Most of these components can be tailored to your needs and customized by choosing custom shapes, matching specific colors, or printing unique designs. In this guide you'll find an explanation of we'll explore the options for each available component options, recommendations for how utilizing components can be utilized, and examples of where you can see them in currently published games. To find For more detailed information about components printed on paper, please see Panda's Graphic Design Guidebook.

Ask your Panda project manager if you don't see something you are looking for. If you don't see something that you're looking for, just ask your project manager. Components and options change all the time and we can't list everything here! We'd also love to create something special for you, so talk to us about finding We offer additional components not specifically listed in this guidebook, and we may be able to produce special components. Your project manager will work with you to find the best solution for your unique component needs.

We hope that this guidebook provides you with useful information as you develop your game design. We wish you the best of luck with your project, and project and we hope to be a key partner on your journey!

Sincerely,

The Panda Team

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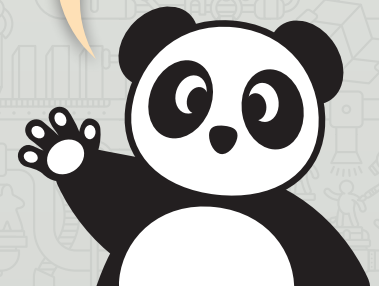
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Look for this icon throughout the guide to find additional useful resources:



Downloadable
Content Available

Keep an eye out for me, too! I'll pop in from time to time with my best tips and suggestions.



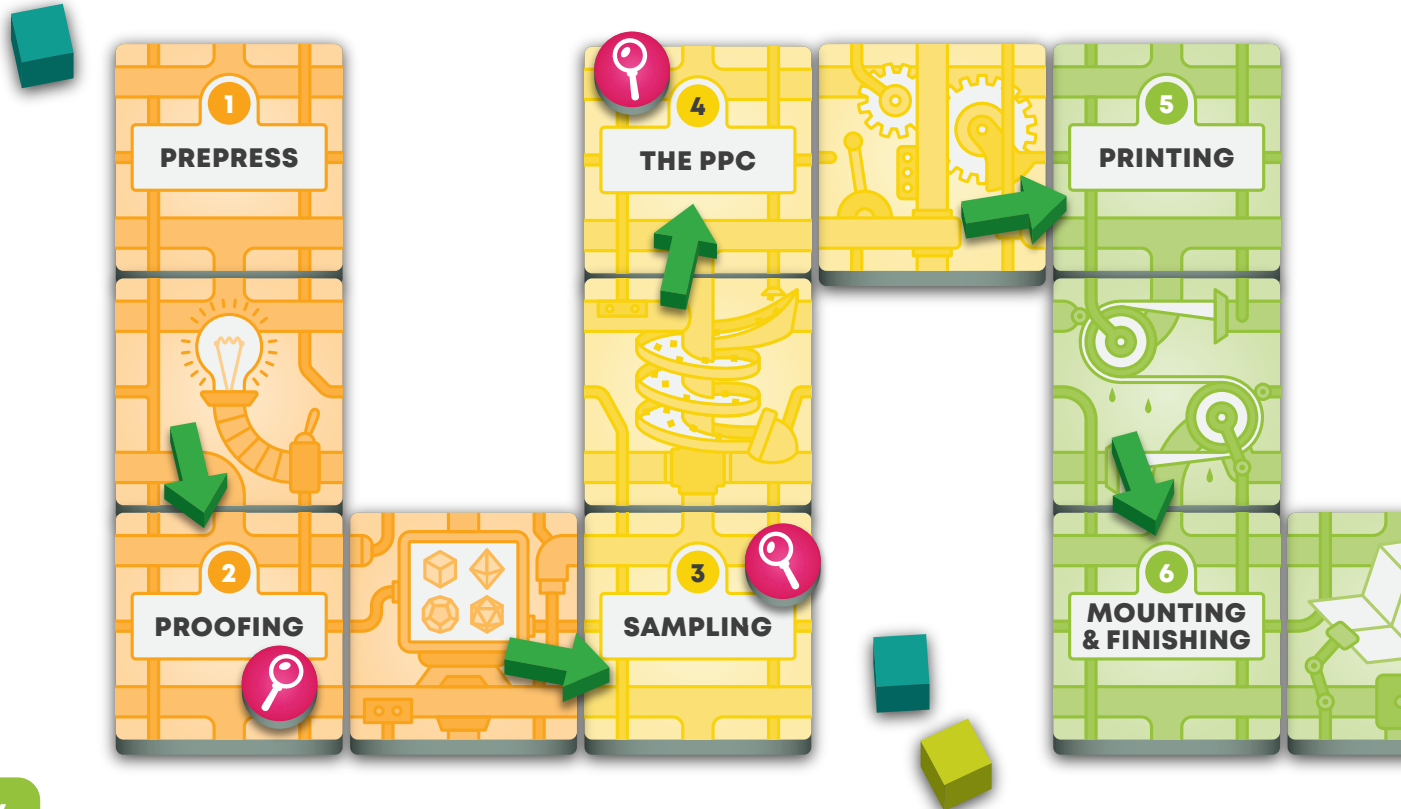
MANUFACTURING TIMELINE

Before manufacturing begins, you'll fine tune your game and finalize your component specifications during the quoting phase.

Panda's website estimator tool is a great starting point to get a ballpark price for manufacturing your game. As a starting point, the estimator uses a smaller, predefined list of components and sizes to choose from. When you are ready for official pricing, you'll refine your specs using a more advanced online tool and request a formal quote.

When you make a quote request, we'll connect you with a Panda project manager. Your PM will help further refine your components and options and get pricing. Once you finalize your component specs and pay a deposit, you're ready to start pre-production.

- 1 PREPRESS (file dependent)** Our prepress specialists review your files to get them ready for print.
- 2 PROOFING (2-4 weeks)** We provide you with digital proofs to review all your content before printing.
- 3 SAMPLING (component dependent)** Samples of your custom components are made & sent to you for inspection.
- 4 THE PPC (2-4 weeks)** Panda sends you a pre-production copy of your print components to inspect.
- 5 PRINTING (10-14 weeks*)** Our printing presses apply your graphics onto paper. **concurrent with steps 6-10*
- 6 MOUNTING & FINISHING** We cut the prints, mount them to cardboard, & apply effects.



MANUFACTURING TIMELINE (CONT.)

7 DIE CUTTING Custom-made blades precisely cut boards, tokens, & card sheets.

8 COMPONENT CREATION Custom dice are made, wood is shaped, & plastics are molded.

9 THE MPC The 1st full mass-production copy of your game is sent to you for inspection.

10 CLIMATIZE COMPONENTS Components are climatized to avoid damage or warping.

11 ASSEMBLY (1-2 weeks) Everything is quality-checked, assembled into the box, & wrapped.


12 SHIPPING (4-6 weeks) Your games are palletized, loaded into cargo containers, & travel to you.

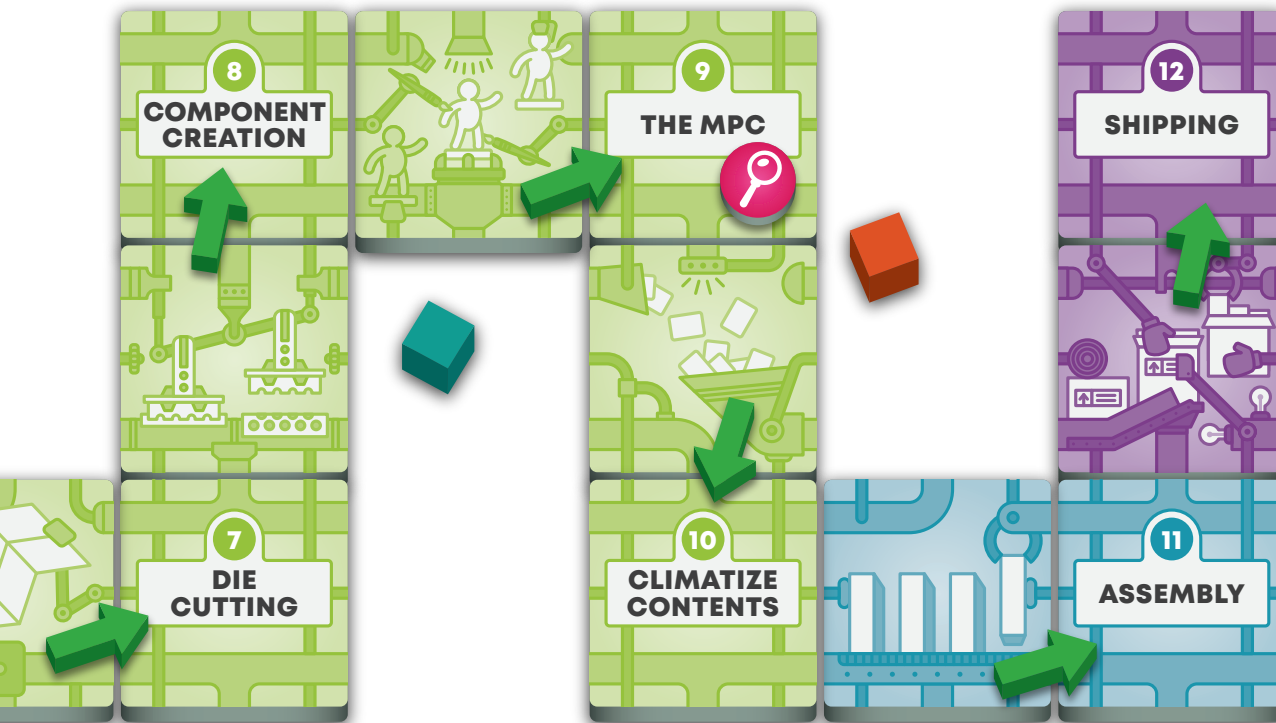
These timelines are general estimates. Every project has unique requirements which can affect the time needed. A simple card game with only printed components will be much quicker to sample, print, and assemble than a complex legacy game with custom plastics and surprises sealed into envelopes.

Let your project manager know if your game has any special requirements or unique components so we can incorporate extra time into your schedule. Multiple rounds of sampling or proof approvals, as well as changes late in the process, will add time to mass production.

Be sure to note the holidays and big events that can disrupt a schedule:

- Chinese New Year
- Gen Con
- Essen

 *Tiles with this token are steps where you will be able to review our work.*



CUSTOMIZATION

As you look through this guide, you'll see badges indicating notable features for different types of components:

DESIGNING FOR COLOR

BLINDNESS: *An estimated 1 in 12 men and 1 in 200 women have some color blindness. Check online resources to find color palettes that are more easily identifiable, and add printed icons or custom shapes to help color blind players identify different colors.*



ANY PANTONE C: Most Panda components can be made in any Pantone Matching System Coated (PMS C) color. To browse and choose colors, either check out a Pantone Color Guide or find your color with a free account on the Pantone website at: www.pantone.com/pantone-connect

SILKSCREEN DESIGNS *designs are applied one color at a time. Panda recommends using only one or two colors with silkscreen application. Not only do additional colors raise the cost, but printing drift can cause the image to appear muddled. Please note that only one color of silkscreen can be applied onto circular shapes. Please indicate the number of colors in your design when placing a request for screen printed pieces. Tip: Experiment with designs that use negative space for impact!*



PRINTING AVAILABLE: Add printing for unique flavor, colorblind accessibility, and a premium appearance. Images or text can be applied to flat surfaces on many different types of components.

UV PRINTING and **HEAT TRANSFER** are both ways to print full-color images. UV printing has a low cost, but resolution may be blurrier. Heat transfer has a higher setup cost, but appears crisp and vibrant.



CUSTOM SHAPES: Many components – wooden pieces, for example – offer fully customizable shapes and sizes at no additional charge. More complex pieces, including metal coins, may require unique tooling to customize the shape.

Add shine with **FOIL STAMPING!** *Metallic foil comes in many colors – not just silver and gold! – and even different textures and patterns.*



ECO-FRIENDLY OPTIONS: Panda is now FSC Certified and can produce some components with more environmentally-friendly or sustainable materials. We are always experimenting and innovating, so ask your project manager about the latest eco-friendly options.

Ask for more: We try to keep our guidebooks as up-to-date as possible, but information changes quickly whether it's innovative components, new materials, or required marking changes. Furthermore, some components need to be fully customized for each new project. Always ask your project manager for custom options and the most current information.

COMPONENT SPEC SHEET

You will need to create a component spec sheet to submit your designs for components that aren't printed on paper. A component spec sheet template is available on our tools page at www.pandagm.com/tools or you may create your own.

After filling out your component spec sheet, save it as a PDF and send it to your project manager. Please ensure the component spec sheet includes the component name, illustrations/pictures from different views, specific Pantone colors, and the number of units per game.

|  | | GAME NAME - Publisher | | | |
|---|--|--|--|--|----------------|
| COMPONENT SPEC SHEET | | | | | |
| Component | Front View | Back View | Side View | Color | Units per Game |
| BASE GAME | | | | | |
| Panda Meeple (Wood) |  |  |  | Base Color  PMS Black 6 C Ink Color  White | 3 units |
| Panda Token (Plastic) |  |  |  | Base Color  PMS 130 C Ink Color 1  PMS Black 6 C | 1 unit |

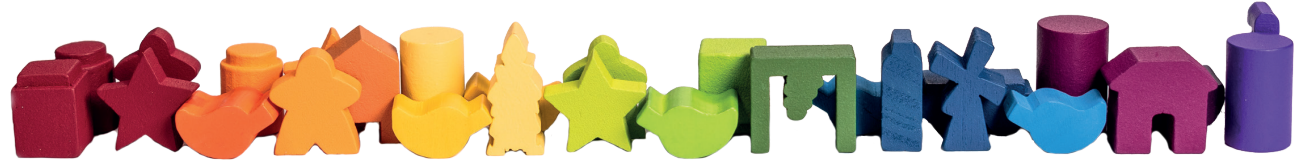


To submit a custom plastic design to Panda, you will need to provide a 3D file such as an STL.



2D WOOD & ACRYLIC SHAPES

Wood is durable, cost-effective, and pleasant to touch and handle. It complements a variety of themes and is infinitely customizable.



Simple acrylic shapes are also a great alternative, especially if you have a shiny or futuristic theme to your game.



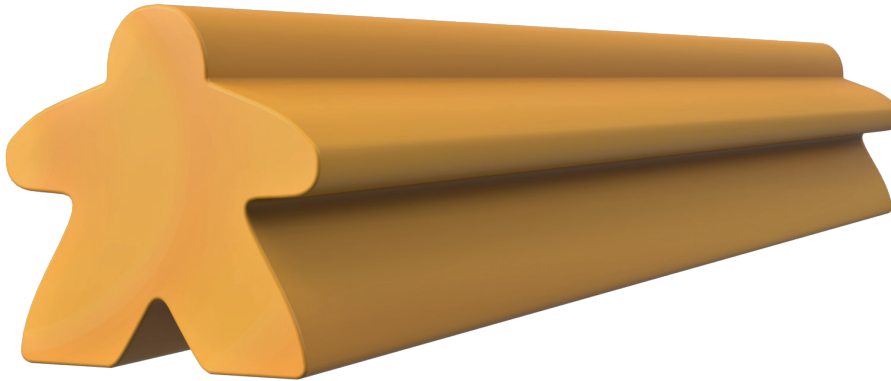
Although Panda regularly makes standard shapes like cubes and discs, all of our wooden and acrylic components are custom manufactured for each game.

That means it is quite easy to personalize the shape, color, and size of your wooden or acrylic pieces.

2D WOOD & ACRYLIC SHAPES (CONT.)

Wooden and acrylic game pieces can both be produced by **machine** or **laser** cutting.

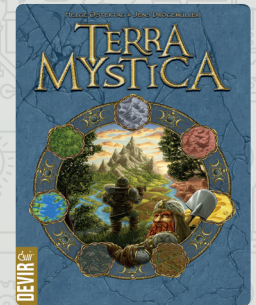
Most pieces are **machine-cut**, which is both high-quality and cost-effective. Making machine-cut pieces is similar to cutting a loaf of bread; a long piece of material is cut into the specified shape (like our meeple loaf below) then each individual piece is sliced off. This process works well for shapes like meeples, houses, or discs, which are flat on two sides and contain no overly complex cuts (often called undercuts).



Making **laser-cut** pieces is similar to using a cookie cutter: a sheet of wood or acrylic is cut into unique shapes with laser precision. Laser cutting is necessary if your token designs have undercuts and are too complex to be made by machine.

Let us know if your pieces will have hidden information, or require stacking, flicking, or connecting together. Your project manager will help you determine the best cutting method.

Examples of our wood and acrylic shapes can be found in *Viticulture* and *Terra Mystica*.



2D WOOD & ACRYLIC SHAPES (CONT.)

In addition to standard paint, Panda can also apply stains and ink washes to wood pieces. Staining can create a natural-looking effect although it isn't as consistent as traditional painting due to variations in the wood.



We can also laser engrave designs on the surface of the wood. This can add depth to your wood pieces, and lends a deluxe feeling to your game.



2D WOOD & ACRYLIC SHAPES (CONT.)



Budget tip: The cost of these pieces depends on the volume of material used and relative complexity. For example, a simple custom farmer meeple that's about the same size as a standard meeple (16 x 16 x 8mm) won't cost significantly more than the standard meeple if it can be machine cut. The cost increases if your custom design is larger or requires laser cutting. Acrylic shapes are slightly more expensive than wood.

Submitting your design: Use a component spec sheet to provide a drawing of each design and include the Pantone C color for each piece. For each unique printed design, submit a PDF, and be sure to include the Pantone colors chosen for any silkscreen designs.



DICE

Dice: the ultimate randomizer. Make your dice the perfect match for your game by customizing their size, shape, color, and iconography.

Customization: Talk to your project manager about customizing your dice during the quoting process. Standard options include any solid color for the dice body and its pips (or numbers); some standard sizes also have an option for squared or rounded corners. For an additional cost, you can also replace standard pips/numbers on any or all faces of your dice with custom engraved, silkscreened, or heat transfer images.



Our standard shapes for dice are 4-sided (D4), 6-sided (D6), 8-sided (D8), 10-sided (D10), 12-sided (D12), and 20-sided (D20).



We have templates for all the above types of dice available for download on our Tools page at pandagm.com/tools/

Custom engraving is a fixed cost, so many clients use standard dice to start their Kickstarter campaign and offer custom engraving as a stretch goal!



DICE (CONT.)

Budget tips: Dice can be a particularly expensive component. Fortunately, there are several ways to design your dice to maximize the bang for your buck.

- Use only one ink color per die face. Using multiple colors on the same face of engraved dice is more difficult to manufacture, and will significantly raise costs.
- Consider the size of your dice. Lowering the size will reduce manufacturing costs.
- Determine how many dice you really need. If players can share dice, you can reduce your game's cost per unit.
- The tooling cost for custom dice varies with the complexity of your design. Silkscreen or heat transfer images are options that don't require custom molds.
- Customize or change only one face of resin dice to save on mold costs. Since only one face of the die will be laser engraved during manufacturing, multiple types of dice can share the same mold.



Submitting your design: Use the component spec sheet to identify the number of faces, base color, and pip or engraving color. If you are requesting a unique design for one or more of your die faces, please also submit a completed dice template and indicate if the design is to be engraved, screen printed, or heat transfer.

Examples of our custom dice can be found in *Troyes Dice* and *Seasons*.





STANDARD COMPONENTS

Panda offers a variety of standard components for use in your game:

STONES & MARBLES: Glass marbles and stones come in a variety of colors and sizes. Stones have a flat bottom so they don't roll around on your table. Colored glass pieces only come in a few colors, but they can be spray painted almost any color.

ACRYLIC GEMS & DIAMONDS: Panda offers several different styles and sizes of acrylic gem pieces. They can also be customized with any Pantone color.

PAWNS: Panda offers a few size and shape options, and they can be customized with any Pantone color.

PLASTIC SAND TIMERS: We can make sand timers as short as 10 seconds to as long as three minutes. The color of both the sand and the caps can be customized.

DRY ERASE PENS: Dry erase pens come in a wide variety of colors and with or without erasers on the cap. We can also make chalk markers for erasable writing on dark surfaces.

PLASTIC CUBES: Basic cubes come in a variety of sizes. Cubes can further be customized with any Pantone color.



STANDARD COMPONENTS (CONT.)

PLASTIC RIVETS FOR CARDBOARD DIALS: Rivets are small round plastic pieces used to connect two pieces of cardboard together. They can be used to create dials for point or resource tracking, or to create multi-layered player boards.

Budget tip: If you already have punchboard sheets in your game, you may be able to add trackers using punchboard and rivets for little extra unit cost. Dials are also a cost-effective way to replace a large number of resource tokens.

PLASTIC STANDS FOR CARDBOARD FIGURES: Plastic stands can be used to hold cards or punchboard pieces. They are a simple and cost-effective way to offer custom player pieces.

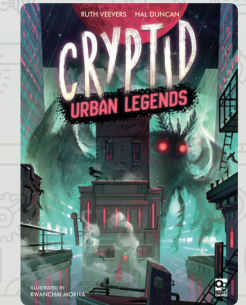
Customization: Panda has several different stands to hold punchboards and cards of varying thickness. When you request plastic stands, please indicate what they will be holding to ensure we use the correct size. When designing punchboard pieces to be held in a stand, be sure to account for the space that will be covered by the plastic stand.

Stands come in pre-set sizes, so the dimensions cannot be customized. Clear and black stands are the most common color requests. You may be able to customize your stand with a Pantone color, but some stand styles have limited color options.

CHIPS & DISCS: Poker chips are available in different materials, styles, and weights including ABS plastic, resin, and clay. Ask your project manager about different styles and printing options.

PLASTIC BAGS: Plastic bags are an affordable and easy storage solution to keep tokens, bits, and cards organized. They come in many sizes and can even be printed. Biodegradable material for plastic bags is also available so ask your project manager about your options.

Examples of our standard components can be found in Wizard: Anniversary Edition and Cryptid: Urban Legends.





FABRIC

CLOTH BAGS: Cloth bags are ideal for keeping pieces organized or hidden. We currently offer bags made from six different materials: cotton, canvas, faux velvet, microfiber, silk, or linen.

Customization: Cloth bags can be made in the size and color you specify. Bags come with two drawstrings standard, but you can request one drawstring or the addition of a plastic closure tab. Bags may be customized with custom embroidery, silkscreen printing (cotton only), or full color printing (microfiber only).

RUBBER PLAYMATS: Rubber playmats can be fully printed on one or both sides, include custom cutouts, or enhanced with double-stitched edges. Be sure to consider the size of your playmat and how it will fit into a box.

CLOTH BOARDS: Cloth boards are a unique alternative to paper game boards or rubber playmats.

Budget tip: Talk to your project manager about pricing for fabric options. For custom designs, embroidery is more expensive than silkscreening. Any additions - such as zippers or closure tabs - will increase the cost.

Submitting your design: Include the dimensions, color, fabric choice, and any additional features on your component spec sheet. For silkscreen or embroidery designs, please provide an image of your design along with your spec sheet with the custom colors identified. Rubber playmat designs should be provided as a PDF with 300 ppi or higher resolution, in CMYK color, and with 3-5 mm of bleed and 3-5mm of margin.



Examples of our fabric components can be found in Pax Pamir: Second Edition and Canvas.



PLASTIC TRAYS & CUSTOM CONTAINERS

PLASTIC TRAYS: Vacuum formed plastic trays provide the ultimate in customizable component containment. Plastic trays are black by default, but other color options may be available at an additional cost. Plastic trays are approximately 0.9mm thick, and you can optionally add a clear lid. Panda can help you design simple trays, but more complicated designs may require professional files and could be much more expensive. Ask your project manager for more information.

COMPONENT CONTAINERS: Small, custom, vacuum formed containers are an alternative to box-sized trays. They not only store pieces inside the box, but they are a great way to keep game pieces organized on the table. Component containers are translucent by default, but other colors may be available at an additional cost.

Trays and containers can also be made out of pressed paper pulp as a sustainable alternative.. The tooling cost is much higher than vacuum formed plastic, however, and manufacturing can take longer. Ask your project manager for more information.

Submitting your design: For custom component containers or trays, submit a 2D or 3D design of your container and an inventory of what it should hold. If you are providing a digital rendering of your design, please submit both STP/STEP and source files. Vacuum formed plastics can also be engraved or screen printed on flat surfaces. Engraved lines must be at least 3mm wide.



Examples of our trays and containers can be found in *Wingspan* and *PARKS*.





CUSTOM SHAPES

Sometimes a game requires a truly unique piece, one so different that it must be formed in a mold. Molded plastics and metals are exciting, but they should be approached with careful consideration.

This section covers how to submit your custom plastics designs, provides an overview of the production timeline, and lays out options available to you. Our goal is to provide you with a broad view of the scope of a project containing molded pieces. Speak with your project manager to determine how including custom pieces in your game will impact production.

Examples of our custom shapes can be found in Return to Dark Tower and Necromolds.



METAL OBJECTS

Metal components are a great way to add heft to your pieces and create a premium experience with your game.

Customization: Metal components require custom molds and can be customized in size, shape, and design.

Metal miniatures must have more exaggerated details than plastic minis. We recommend keeping each detail (raised or recessed areas) above 0.2mm so they show up on the final piece. Electroplated designs are limited to metallic colors. Painting can achieve rich, solid colors that will be less metallic in appearance. Washes and rust effects can give your metal pieces a weathered look.

Budget tip: Custom metal components require tooling costs for the molds, and the materials are more expensive than other components. The extra weight added by metal may also increase your freight and fulfillment costs. Consider keeping your metal component quantity low.

Submitting your design: When requesting your quote, please send a 3D STL file of your design. For metal coins, you may also submit a black and white drawing to illustrate its shape, thickness, and recessed areas.



Examples of our metal objects can be found in Scythe and Kanban EV.





PLASTIC MINIATURES

Multiple plastic colors: If your miniatures come in multiple colors, we will need to reset the molds for each color used. To minimize costs to you, our technicians will try to group same-colored sculpts within a mold. If the same sculpt appears in multiple colors within the game, it will increase production costs.



Pre-painted miniatures: Panda can also produce high-quality, pre-painted miniatures. Typically, we only recommend pre-painted miniatures for games with very large production runs (over 10,000 units). Pre-painted miniatures will also add significant time to your production process. If you are interested in having your plastic pieces pre-painted, please inform your project manager very early in the production process so they can guide your next steps.



PLASTIC MINIATURES (CONT.)

Custom plastic figures are a beautiful way to help a game to stand out. However, custom plastics also increase complexity, cost, and the length of time to make your game. Panda suggests that you plan for at least seven months of production if your game has custom plastics.

Submitting your design: To submit a custom plastic design to Panda, you will need to provide either an STP/STEP file or a 3D STL file.

STP files (also called STEP files) are the most common format for submitting plastic designs to Panda. They are built by a 3D artist to describe the surface geometry of an object. The advantage of STP files is that they can be sent digitally, you can ensure that your designs have precise dimensions, and they are easy to adjust. When submitting STP files, ensure that your designer prepares the files to include the final dimensions for each piece. We also recommend exaggerating any facial features so that the desired level of detail is maintained throughout the molding process.

When creating your miniature 3D designs, ensure all details (raised and indented areas) are visible to the naked eye. Generally, the human eye can see details larger than 0.2mm, but we recommend keeping details at least 0.4mm for good visibility. The molding process can obscure design elements that are too fine, so try to thicken/deepen details to make them stand out on the final product.

Some miniatures have thin sections representing weapons, tails, tentacles, etc. For hard plastics such as ABS, POM, HIPS, and acrylic, keep these sections at least 0.6mm in diameter to prevent warping and breaking during molding or play. For softer plastics like PVC, these sections must be at least 1.5mm thick. During production, Panda's skilled plastic engineers can help enhance the details on your models while improving durability, if necessary.

Examples of our plastic miniatures can be found in Mechs vs. Minions and Hellboy.



PLASTIC MINIATURES (CONT.)

Undercuts: Some designs can only be made using multiple pieces. These are called “factory assembled miniatures” because we assemble them for you before packing them in the game box. Undercuts are the main reason we need to mold a miniature in multiple pieces.

An undercut is created when design features overlap in multiple dimensions. Two-dimensional (or mostly two-dimensional) miniatures are easy to remove from their molds because they can be lifted out cleanly in one direction. An undercut is created when there are two or more layers of plastic in a third dimension, as illustrated in **Figure 1**. Undercuts make it impossible to lift the miniature directly from the mold. If a portion of your model contains “empty space” (such as an arm bent in front of a mini’s chest), it likely has an undercut. These are shaded orange in **Figure 2**.

Panda can solve undercuts by molding the miniature in multiple pieces as shown in orange in **Figure 3**. Each part of the design that creates an undercut is manufactured separately and attached during assembly. However, this makes the process more complicated and expensive.

Another way to solve undercuts is to alter the design so that it can be cleanly removed from a mold. If the design can be changed so there are no features that overlap in multiple directions, as shown in **Figure 4**, then factory assembly is not required. A skilled 3D artist or sculptor with tabletop game experience is an excellent resource to help optimize your design.



Figure 1

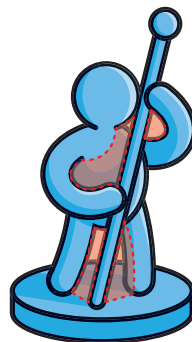


Figure 2



Figure 3



Figure 4

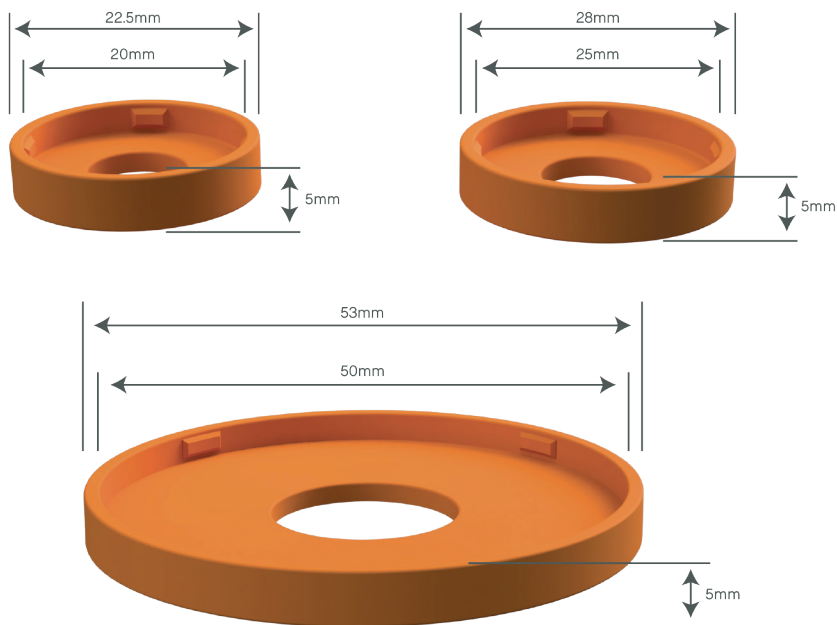
SNAP BASES

Plastic snap bases can help you avoid the cost of resetting molds for different colors. These colored, round bases snap onto the bottom of your plastic miniature, reducing the need to manufacture multi-color miniatures. Not only can this lead to better looking miniatures – some colors like yellow do not show details as well as gray, for example – but it is much more cost effective to produce your miniatures in a single color.

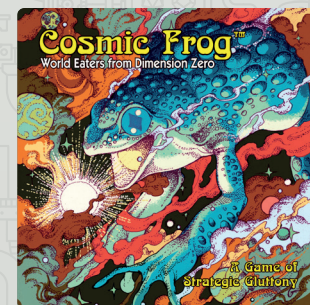
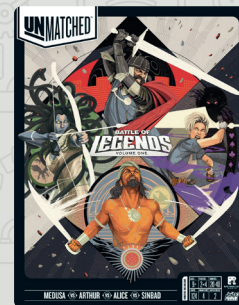
Ask your Project Manager for more information about different materials. In addition to standard hard plastic, we can also produce a soft flexible base that is easier to remove.

Budget tip: Panda has existing molds for snap bases in 20mm, 25mm and 50mm diameter sizes. If you want to use a non-standard size, there will be a tooling fee.

Submitting your design: Simply indicate the diameter and Pantone C color desired for the snap base.



Examples of our snap bases can be found in *Unmatched* and *Cosmic Frog*.



PLASTIC MINIATURES TIMELINE

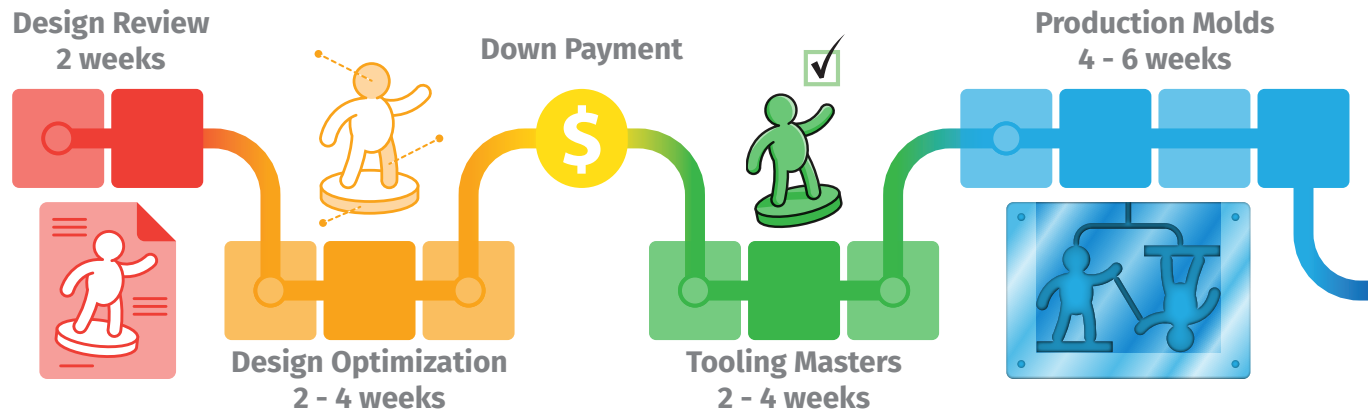
Please note: This sample production timeline is a rough estimate. Due to the increased production time required, it is very important to inform your project manager early in the process if you are considering using custom plastic pieces.

Design Review — 2 Weeks per Cost Estimate: Please ensure all 3D files are submitted in the final dimensions for each piece. Our team will review the files to ensure the designs are optimized for injection molding, and they will provide pricing based on your designs.

Design Optimization (optional) - 2-4 weeks: Panda's plastic engineers can optimize your designs for injection molding. This may allow us to manufacture your pieces more affordably and with a greater level of detail. Speak to your project manager about how design optimization can improve your project.

Down Payment: Once you are ready to proceed with production, you will be asked to pay 50% of the production cost and 100% of the tooling cost of your plastic pieces.

Tooling Masters — 2-4 weeks: Based on your approved designs, we will create high-quality wax replicas of your miniatures. We then make a temporary silicon-based mold for each figure. We use the temporary molds to create resin tooling masters of your miniatures. These resin samples are analyzed for undercuts and other impediments to manufacturing. Our engineers will provide recommended changes to lower costs or improve structural integrity.



PLASTIC MINIATURES TIMELINE (CONT.)

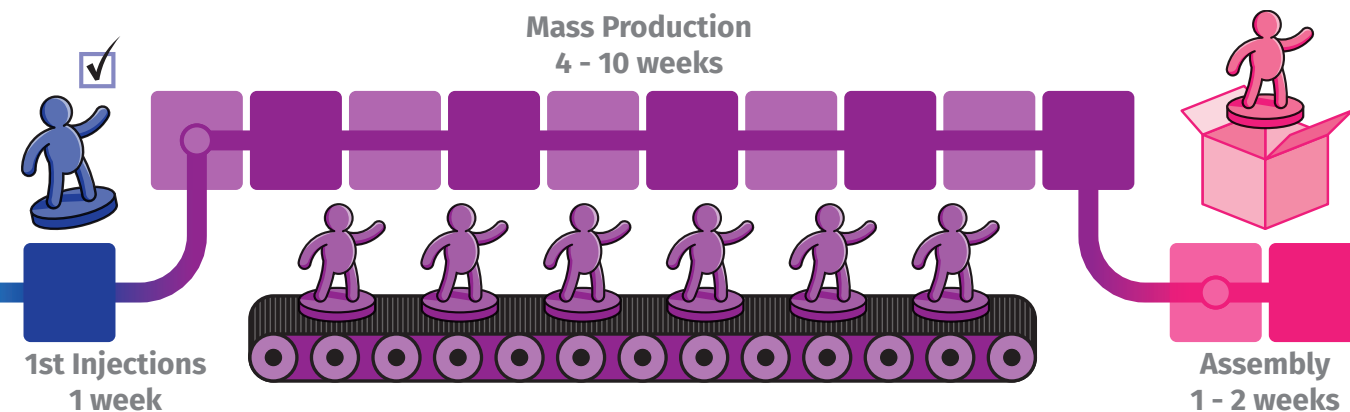
One set of tooling masters will be air shipped to you for approval. This is the final checkpoint before the steel production molds are made for your pieces. Once you approve the tooling masters, our team will create the final molds and no further changes can be made.

Creation of Production Molds — 4-6 weeks: After your approval, Panda will create steel production molds of your plastic pieces. Molds can be used over 300,000 times, so they are available for future print runs of your game.

Creation & Approval of First Injections — 1 week: As soon as the molds are made, our team will send the first test injections through them. These production-quality miniatures will be sent to you for approval. Once you have received and approved these miniatures, mass production will begin.

Mass Production — 4-10 weeks: During this time, all of your plastic pieces will be manufactured. Once production is complete, you will receive final production samples of your plastic pieces.

Assembly & Packaging — 1 - 2 weeks: Assembly time varies based on project complexity.





Examples of our polyresin pieces can be found in Feudum and Honey Buzz.



POLYRESIN PIECES

Polyresin can be a great alternative to custom injection plastics for simple designs. Resin pieces are made with a silicone mold, making them much easier to manufacture than plastic miniatures. Polyresin pieces can also be custom painted with multiple colors.

Due to polyresin's more brittle nature, custom pieces must have strong structural integrity. We also recommend that polyresin designs generally be kept to under 30 mm in diameter.

The process for developing custom resin pieces is very similar to the process for miniatures.

Submitting your design: Please submit 3D STL files for your designs of custom polyresin pieces. Our factory may make small adjustments to optimize for mass production.



GLOSSARY OF COMMON TERMS

Acrylonitrile Butadiene Styrene (ABS)

ABS plastic is a very hard plastic that is most commonly used for geometric shapes with little detail. It is expensive to manufacture but can be a good choice for pieces such as miniature bases. ABS also looks good when translucent.

Acrylic (Polymethyl Methacrylate)

Acrylic is a very hard plastic that can be both transparent and polished. However, it is the most expensive type of plastic that we manufacture.

Electroplated Zinc

Electroplated zinc is the most commonly used metal alloy for metal coins. It is durable and can carry a whole host of finishes: solid or translucent, glossy or matte.

Foil

Stamped foil is available in gold, silver, and other metallic hues. Foil can be applied to flat plastic surfaces as well as printed materials.

Heat Transfer

Heat transfer is a process in which a full color image is printed and then adhered to a surface.

High Impact Polystyrene (HIPS)

HIPS is a plastic used in injection molding that is related to but less brittle than polystyrene.

Pantone C / PMS

The Pantone Matching System (PMS) is a system for designating specific colors. Pantone colors are used to indicate standard colors as well as metallic and other inks not producible by the CMYK process. Due to the nature of our product line, we request colors come from Pantone's Coated (or C) line. Visit www.pantone.com for more information.

Polyoxymethylene (POM)

POM is an opaque plastic that is utilized for its hardness and durability.

Resin / Polyresin

Resin is a thermoplastic best used for less detailed pieces. Resin pieces are made with a silicone mold which is much more affordable and flexible than the standard steel mold. Silicone-molded pieces can be made with some undercuts, but resin is somewhat brittle and can break more easily. It is best suited for shapes with strong structural integrity. Consequently, we do not recommend making humanoid figures in resin.

Polystyrene (PS)

PS plastic is most commonly used for plastic inserts and small plastic cubes. It is the most affordable type of plastic that Panda manufactures. It is also a fragile plastic, however, that is best used for shapes with strong structural integrity.

Polyvinyl Chloride (PVC)

PVC is typically used when creating humanoid figures that have a high level of detail. PVC plastics can vary in hardness depending on the manufacturing process. The hardness of PVC is graded in degrees. We typically manufacture plastics that are between 60 and 110 degrees. Lower degree ratings equate to softer plastics. Manufacturing PVC in a softer plastic allows for slight undercuts in the designs while harder plastic retains more detail. Typically, Panda will use the hardest PVC possible while still retaining the viability and integrity of the original designs.

Silkscreen

Silkscreening is a method used to stencil individual Pantone inks onto a flat surface.

Tooling

Tooling refers to the fixed production cost needed to create a mold.

Vacuum Mold

A vacuum mold is a special mold that uses heat and suction to form a sheet of plastic. This is primarily utilized for plastic box inserts and component containers.

Meeples, minis, bits, and beyond!

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