



Moulding & Casting

Starter Guide

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Advice & Information (CONTINUED)

Casting Depths

The recommended depth of cast for the resin system is primarily an advised safe limit which is to ensure they will perform as expected providing they are used correctly. If unsure a trial test is the best way to determine what method and process suits best.

Trial and error

As with any creative process, practice makes perfect. The materials and processes involved in mould making can be a lot to take onboard which means the likelihood of failure for a beginner can be quite high which is very unlikely to be fault of the material supplied. MB Fibreglass is only responsible for the quality of the materials. The responsibility for the processing and handling of the materials lies solely with the end user. If you are unsure about a particular aspect in this guide please get in touch for further advice.



Image for illustration purposes, exact contents will depend on kit size.

Equipment List

Other than the kit itself, a set of digital scales are a necessity. It can be useful to have glues, modelling clay and release agents but they may not be necessary depending on the exact requirements for the type of mould you are making. This is something you'll need to determine before starting.



Step 1: Preparation

The surface of the original item to be replicated should be clean and free of any dust or loose material. Silicone in general will only stick to itself with small exceptions, ie. itself, other silicones, silica and glass. Porous / highly textured surfaces may make it difficult during de-mould at which point a suitable release agent should be used.

Whilst a custom designed mould box is ideal not everyone has the equipment at hand to make one, which is where household items can be an incredibly useful alternative. Common items often used are plastic cups, takeaway containers, clean yogurt pots, modelling clay etc. Whatever you choose make sure the container is water tight to prevent the silicone from leaking. The original item to be moulded can be fixed to the base of the mould box / container with a variety of materials from Cyanoacrylate Adhesive (super glue), Hot Glue or similar.

Step 3: Measure & Mix

Now that you know the weight of silicone you can commence to mixing. For an easy example the void to fill is 220g in weight of rubber which makes for an easy mix of 200g of the silicone base and 20g of catalyst as the mix ratio for the GP-348IF uses a 10:1 by weight ratio.

Set the empty mixing pot on the digital scale and make sure it is reading zero, add the silicone base to the desired weight and just before you add the catalyst ensure the lid is tight and shake the bottle before adding it to the silicone base to ensure the pigment indicator is well mixed. If mixing large quantities of silicone it is more beneficial to measure the silicone and catalyst separately and combine them when ready to use. Ensure the mixed material is a consistent light pink colour with no white streaks, scrape the sides and bottom of the cup until there are no streaks left. The Polycraft GP-348IF has an average 30 minute pot life at room temperature, this gives

Step 2: Quantities

Determining quantities is relatively easy for basic shapes and a little more tricky with complex shapes. For more basic shapes you can use our online quantity calculator to determine volumes. With the example of a rectangular mould box, measure the internal Length x Width x Height of the box to determine the volume. Measure the original item to be replicated and then deduct the volume of the item from the mould box which in turn will give you the volume required to fill the void. Once you have your required volume multiple your value by 1.21 (Polycraft GP-348IF only), this will give you the approximate weight of silicone required. Given the viscosity of the silicone you will tend to loose material in the container and mixing pot so its worth allowing an extra 5% or 10% which can help to avoid running short. You can of course quickly mix up another smaller batch to top up the mould if required.

plenty of time for a adequate mixing. Whipping the mixture will introduce lots more air which could get trapped during moulding which will become defect in the form of a void once the rubber has cured. Once the material is well combined then its ready to pour into the mould box/ container.



(weighing out silicone at 10:1 ratio)



(Part way through the mixing process)

Step 4: Filling the mould

When it comes to pouring the silicone its always best to pour a slow and constant stream away from the original item. Allow the silicone to flow around the mould box / container. The silicone will find its own level during this process. Pouring directly onto the original increases the chances of trapping additional air and is best avoided when possible. Once poured leave the mould on a level surface to cure. The GP-3481F will have progressed to a stage where it can be handled in approximately 12 hours, but its best to leave it overnight before demoulding. It is advisable to allow the mould to cure for at least 3 days at room temperature before using as this will help prolong the life of the mould. We recommend at least 24hrs minimum where possible. Using early before the silicone has the opportunity to fully cure tends to result in a shorter lifespan of the mould.



(taking care to pour the silicone away from the object to be moulded)

Step 5: Demoulding the silicone

Once the rubber has cured it can then be demoulded, Simple drafted shapes will release easily, Items with reasonable undercuts may require a relief cut in the mould to allow it to be demoulded, angled / zigzag cuts are best as this will allow the mould to piece together more easily. Strapping or elastic bands can be used to put light pressure around the cutting to hold the mould together when it comes to pouring your resin into the mould. Proceed with caution keep the cuts minimal where possible, remember there is a chance of resin leaking from the cuts so the finer the cut the less chance of resin leaking at the resin casting stage.



(during the demould take care to gently release the silicone from the originally item)



(mould and original side by side for comparison)

Step 6: Resin - Mix & Measure

Now that the rubber has had the opportunity to cure the next stage is casting the resin. The Polycraft SG2000 is an easy to use low viscosity resin system with a 1:1 mix ratio by weight. An example ratio (50g Part A to 50g Part B). Similar procedure as before with the silicone, first zero the scale and measure out Part A, and then repeat the process with Part B and mix thoroughly. Remember the SG2000 will only have around 2.5 to 3.5 minutes from the moment you combine both materials so its worth making sure you are prepared before adding the two components together. Mixing the resin is considerably easier to mix in comparison to the silicone. Once you are sure the resin has been thoroughly mixed you can then proceed to pour the resin into the prepared silicone mould.



(Measuring the sg2000 resin 1l by weight)



(thorough mixing of both components prior to filling mould)



(pouring the resin into the mould)

Step 7: Demoulding the resin

Once the resin has had time to cure, you can then proceed to release it from your mould. Careful demoulding will normally help to prolong the life of the mould. Highly detailed parts can take a little manipulation to aid release. Low detail and simple shapes will be easier to release when compared to complicated shapes and those with fine detail. Moulds do need replacing over time, as they age you may find they become damaged or the resins do not release as cleanly as they once did. Release agents can prolong the life of the mould but ultimately they will need replaced at some point. Access the moulds with each use as demoulding technique, different resins, mould shape and detail will cause the silicone to deteriorate at different speeds .



(releasing the edges of the casting from the mould)



(removing casting from the mould)



(checking casting for defects / imperfections)



(Left: High details reproduction, Centre: Original, Right: Silicone Mould)



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