



SUITABLE MOULDING MATERIALS

Choosing the mould material will depend on a number of factors:

Original artwork (master) material and shape

If there are a lot of overhangs/undercuts on the master then a flexible mould will be needed. However, on larger, simpler shapes a rigid moulding material may be more suitable, such as resin/fibre glass.

For life casts a non toxic and fast drying material is required: plaster, alginate, Smooth On Body Double, latex.

Final casting material

Certain materials are only suitable for specific casts, for example alginate is best only used with plaster casting. Planning your casting material is important before starting your mould.

Level of detail required

Some reusable moulding compounds produce a lower level of detail compared to most silicone and resin moulds.

Number of reproductions/casts required

It is important to determine how many casts you require from your mould, waste moulds (usually plaster) can be a cheap way to do a single cast. If multiple casts are required then silicone rubber is a better choice, as it can be used over and over again without deteriorating.

Budget

Mould making can be an expensive process, understanding the requirements of the project is important before choosing materials

RELEASES AND SEALANTS

Most moulding materials will require a release agent, this is usually a spray/wax/vaseline that is applied to the surface of the master to ensure that the moulding material does not stick.

Depending on the material of your master and your choice of mould material, you may need a release agent and/or sealant. Careful consideration should be given to the surface of your master because any excess release agent or scratches on the surface will be transferred into the detail of your mould.

Depending on your moulding material most porous or slightly damp materials, ie plaster, wood and stone, will require a sealant before a release agent is applied. Any layers of sealant or release should be allowed to sufficiently dry before a further coat is added.

Layers of wax can be applied and polished onto the surface of your master to give a high gloss finish to your mould, as well as acting as a good release.

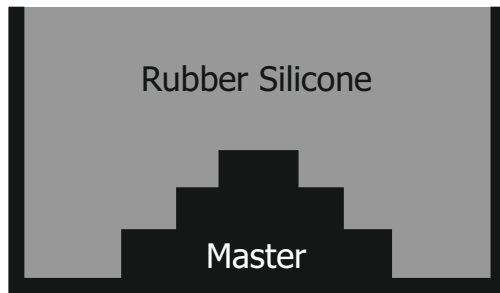
MAKING A RUBBER MOULD

This is only a basic guide, there are many ways to go about making a mould and through practise and experience you will develop your own methods.

Open mould

The simplest mould is an open mould when the master object has one flat side, it can be placed at the bottom of a moulding box and the moulding material simply poured over the object. Once cured the mould can be removed from the box (ensuring the walls of the box have a release agent applied) leaving a cuboid mould with the negative space of the object within it.

Figure 1



Moulding box

Figure 2



On more complicated shapes it is necessary to make up the mould of two or more parts that join together.

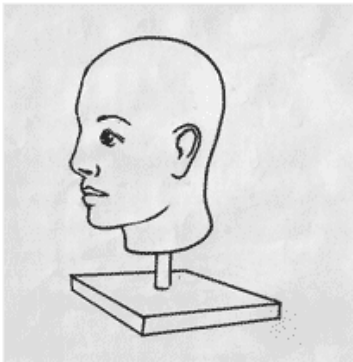


Figure 3: The original artwork or master

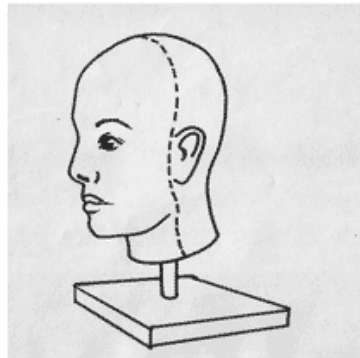


Figure 4: Line indicates where mould joins will be

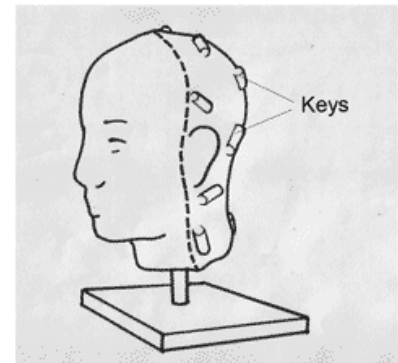


Figure 5: Object covered in silicone and keys added

To begin, cover the entire object with a thin layer of rubber (approx 2mm). Once this has cured you can build up the thickness to between 5-10mm, ensuring that where the edges of the mould meet has a thicker covering.

Fix keys (small rounded tubes of cured silicone) to the curved surface, these will hold the rubber skin in place when you make the mould jacket, see figure 5.

You now need to make a jacket for the mould, this will hold the flexible rubber skin in place when you are casting. With a silicone mould it is best to do this with fibre glass and laminating resin or Smooth On Plastipaste, however you can use plaster bandage although this will deteriorate over time.

Firstly mark out the lines you have decided to make for the separate parts of your mould (see figure 4). The walls of your jacket should follow the lines you have made on the rubber. Accurately make a Clay Scrim* (see figure 6) along the line of your mould and build up the fibre glass walls against these.

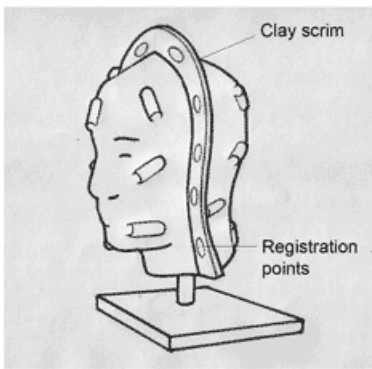


Figure 6: Clay scrim along lines of cured rubber mould

As you layer up the different parts that make up the jacket (see figure 7) ensure you have a barrier or release agent on the previous piece so the two cannot stick together, these also should have registration or keys (see figure 6) on them so they can be taken apart and put back together accurately.

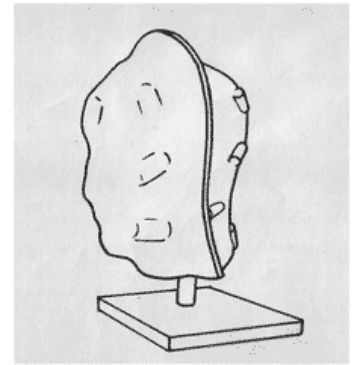


Figure 7: Fibreglass jacket is applied to first side and along the clay scrim

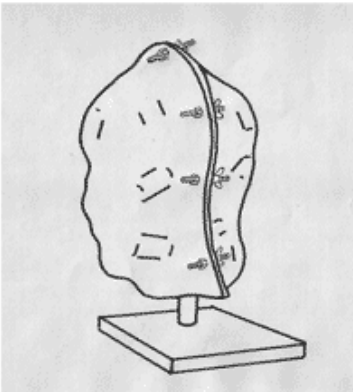


Figure 8: The final jacket fixed together once master has been removed.

* Clay Scrim: a wall about 5cm in height that follows the line of your mould to stop the jacket spilling over to another section of the mould. The clay should have a release agent on it as well as registration points (the registration points can be simply made by making an indentation with your thumb).

Once the jacket has cured you can remove it. Make a scalpel cut along the separation lines marked on the silicone underneath, the rubber will come away with the jacket as it will be fixed now with the keys. Take out the master.

Once you are ready to cast the mould, use wing nuts (see figure 8) to ensure the pieces of the mould remain firmly together while casting.

CASTING

To cast the object turn the fastened together mould upside down and pour the casting material into the opening. On small moulds you may need air holes in your mould to allow air to escape as you pour in the casting material.

Other Moulding Materials

Alginate

- Usually used for life casting as non toxic
- Mixed with water
- Degrades after one or two casts
- Only for use with plaster

Moulding Compounds (Gelflex/Polymorph)

- Less detail will be picked up in the mould
- Reusable by melting down
- Is affected by heat so best used with plaster and waxes, can be used with polyester resins but the surface will be affected

Polyurethane Rubbers

- Needs a good release agent and sealant
- Very good detail obtained
- Long curing time
- Good for concrete casting

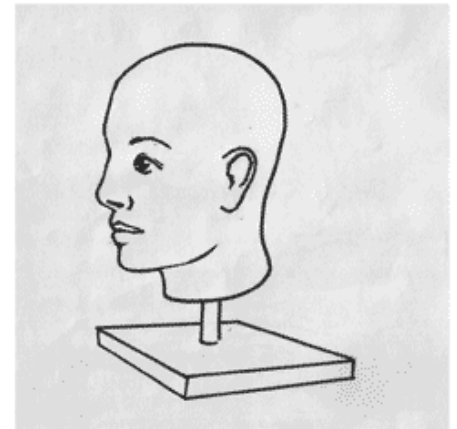


Figure 9: The final casting from the mould should be a complete replica of the original artwork.