

master models
for scale models

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“ exceptionally
tolerant
manufacturing
process ”

In general, Master Patterns may be made from almost any stable non-porous material including brass, SLA, tooling board, acrylics, waxes and cast resins. It is vital that all gaps and hairline cracks are thoroughly sealed, and we ask that masters be finished with acrylic or cellulose grey primer.

Polyurethane Resin Master Patterns

As regards shrinkage, we generally quote up to 0.4%, which means that, in many applications, it may safely be ignored. However, it is worth bearing in mind that resin does expand and contract with changes in temperature, so, if designing a composite model with, for example, cast or etched metal major components, tolerances should not be so tight as to prevent minute differential movements.

Wall thickness should ideally be 3mm or more wherever possible. However it must not be less than 1mm, except in very localised areas. A robust master, where appearance is not a problem, is much easier to cast successfully. A few extra grams of resin being much preferred to an over delicate model.

Knife edges in resin are easily damaged, and should therefore be avoided. For PU resin castings, which are to be spray painted, the master pattern surface needs to have a matt finish.

A final thought on masters for polyurethane resin casting

It is an exceptionally tolerant manufacturing process, though a moulding cannot be better than the master, so it is worth taking trouble over the finish.

The silicone rubber will reproduce detail as fine as a thumbprint or marker pen line.

White Metal Masters

The same rules apply to white metal master patterns as for PU resin master patterns, with a few main differences.

The first being overall thickness of master patterns. This has to be kept to a minimum, to give the best surface finish on the castings.

The second being, material of the master pattern.

If we are supplied with metal master patterns, these will be placed in a heat cured mould tool, therefore the components will **shrink** by 0.5% - 1%, whereas non-metal master patterns will be placed in a cold-cured mould tool and these components will **expand** by 1% - 1.5%.

For more information
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