

Design Guide - Vacuum (Urethane) Casting

Max Size: Parts up to 3000mm

Advantages

Low tooling costs
 Self coloured parts
 Surface textures
 Fast and allows for design iteration
 Minimal redesign required -
 undercuts OK, draft not required

Drawbacks

Silicone molds depreciate with use
 Expensive as volumes increase

Tips & Tricks

Reduce weight to save costs
 Keep wall thicknesses even
 Add ribs to large flat areas for strength
 and to reduce warping
 Consider a 0.15% shrink rate

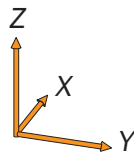
Surface Finishes

Polishing
 Sand blasting
 Painting
 Plating & more

Materials

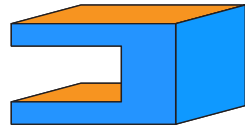
Many polyurethane
 resins that mimic
 the characteristics
 of thermoplastics.

Tolerances - +/- 0.5mm or
 +/- 0.1mm/30mm whichever
 is greater.



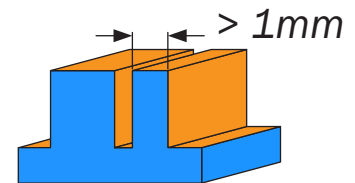
Undercuts - not a problem for vacuum
 casting and can be done without inserts.

Undercut OK

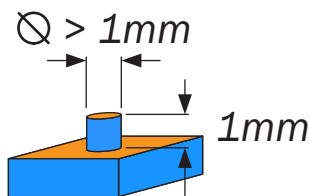


Wall Thickness - varied wall
 thicknesses are allowed but
 consistency is recommended.
 PoMo suggests a minimum wall
 thickness of > 1mm.

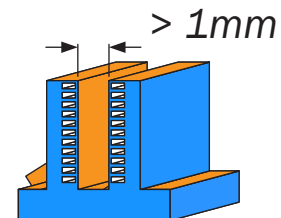
Varied
 Walls OK



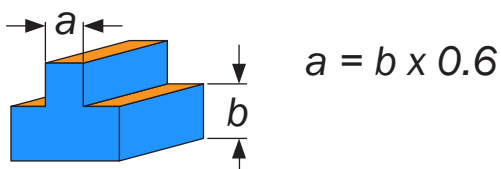
Holes & Bosses - through holes are easy, blind holes less so but can be molded.
 Threaded inserts via over mold or post process. Bosses should have a minimum
 height and diameter of > 1mm. Bottom radius \leq 25% of wall thickness and the
 walls of the boss \leq 60% to prevent shrink.



Overmolded
 Inserts OK



Ribs - ribs should be \leq 60% of the wall
 thickness to reduce sink, include as
 large a radius as can be tolerated.



Text & Logos - recessed or embossed.
 Text should be \geq 1mm wide and
 deep/high and for best result with
 a 1mm gap between letters.

