



HLH DESIGN GUIDE

Vacuum (Urethane) Casting

Address

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High Quality Rapid Prototypes,
Rapid Injection Moldings and Rapid Parts

HLH MAX SIZE: 2300x1000x400mm

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

MATERIALS:

Many polyurethane resins that mimic the characteristics of thermoplastics.

SURFACE FINISHES:

Polishing、
Sand blasting、
Painting、
Plating、
Etc.

ADVANTAGES:

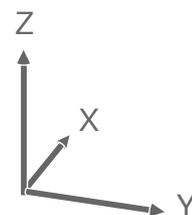
Low tooling costs
Self coloured parts
Surface textures
Fast and allows for design iteration
Minimal redesign required -
undercuts OK, draft not required

DRAWBACKS:

Silicone molds depreciate with use
Expensive as volumes increase

TOLERANCES:

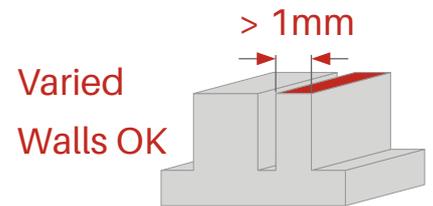
± 0.5mm or ± 0.1mm/30mm whichever is greater.



VACUUM (URETHANE) CASTING

WALL THICKNESS:

Varied wall thicknesses are allowed but consistency is recommended.
 HLH suggests a minimum wall thickness of > 1mm..



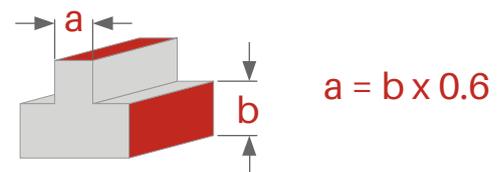
UNDERCUTS:

Not a problem for vacuum casting and can be done without inserts.



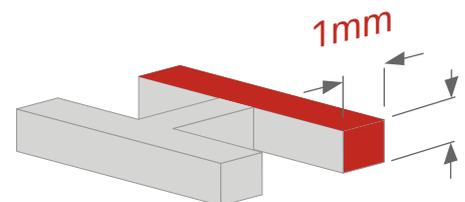
RIBS:

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 $\geq 1\text{mm}$ wide and deep/high and for best result with a 1mm gap between letters.



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.

