HLH Design Guide - CNC Machining

HLH Max Size: 3000x1200x850mm

Advantages

High speed
High dimensional accuracy
Great surface finish
Wide material selection
Suitable for high volume or one off prototypes

Drawbacks

It can be expensive for complex parts and for larger parts.

Tips & Tricks

Radius internal corners
Loosen tolerances where possible
Keep all features perpendicular to 6 sides
Reduce the number of setups
Keep it simple

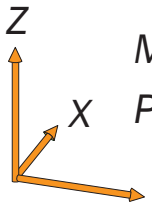
Surface Finishes

Polishing
Sand blasting
Painting
Plating & more

Popular Materials

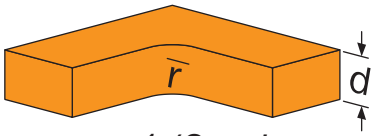
Plastic: ABS, PC, Acrylic
Metal: SS304, 316
Aluminium 6061, 7075
Plus many more

Tolerances - tolerances according to ISO 2768-1. The tightest tolerances as standard are +/- 0.05mm for metals or +/- 0.2mm for plastics, otherwise discussed per project.



Metal = +/- 0.05mm
Plastic = +/- 0.2mm

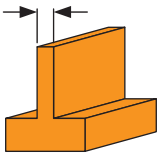
Cavities & Pockets - will always have an internal radius.



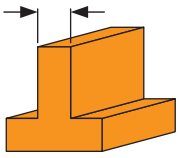
r > 1/3 x d

Walls - thin walls risk warping and affecting the accuracy of the part. HLH recommends:

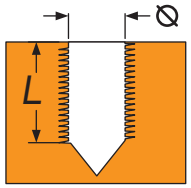
Metal > 0.8mm



Plastic > 1.5mm

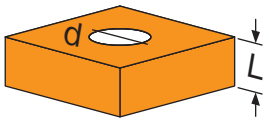


Threads - HLH can accommodate and cut metric threads, imperial UNC and UNF, pipe threads among others. All threads should be clearly marked on your 2D drawings. Thread length of 3x the hole diameter is recommended.



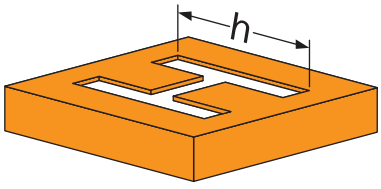
L = ⌀ x 3

Holes - all holes < 20mm diameter should accommodate standard drill bit sizes, metric if possible. Depth of the hole should be ≤ 10x diameter.



Suggested: L < d x 10
Preferred: L < d x 5

Text & Logos - engraved text is better than embossed because less material is removed. Text ≥ 5mm high and ≥ 0.8mm deep with ≥ 0.5mm clearance between letters.



Sans Serif
20 Point
h ≥ 5mm