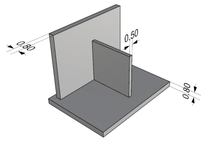
3D Precious Metal Printing Design Guidelines

Cooksongold
Heimerle + Meule Group

Wall thickness/dimensions



There is no right or wrong when it comes to jewellery design, with testing some things may work and others may not. Typically, a design needs to be a certain thickness to be able to withstand the 3D print process.

We would advise structural and external walls to have a minimum metal thickness of 0.8mm with smaller elements such as claws or small setting bezels to have a minimum metal thickness of 0.5mm.

Earring posts will not be printed as the length and thickness does not print well. We would advise that these are soldered on to the piece after it has been printed.

Details

You can create details such as embossed or recessed images and lettering on pieces but sometimes a post print process will give better results especially with text.

Raised text must be 0.30mm thickness at a minimum and no more than 0.60mm high with a spacing of 0.30mm between letters.

Recessed text must be 0.30mm thickness at a minimum and no more than 0.50mm deep with a spacing of 0.30mm between letters. We would also recommend using a negative draft angle (taper). It is better to keep the width of the recessed areas larger than the depth.

For better results ensure there are no sharp edges and that any text is filleted/rounded.

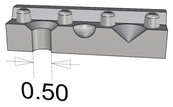
Sharp edges

Two edges that meet into a sharp point or edge will not print very well. This process prefers softer and rounded edges to get the best results.

If you do have a sharp external edge, we would recommend either thickening the edge to 0.30mm or using the fillet tool to create a soft 0.30mm radius. The same applies to a sharp internal edge.

It is better to have too much material in these places and you can sharpen the edges during finishing.

Small holes



Small holes should be avoided as they will cause issues during the process. Holes should be no smaller than 0.50mm at a minimum.

Fill the holes during the CAD process and if you do need to create pilot holes for setting then use a conical/spherical shape to create a guide for a drill to be used once printed. It is better to keep the width of the pilot divot larger than the depth.

Hollows/multiple pieces

There is no right or wrong when it comes to jewellery design, with testing some things may work and others may not. Typically, a design needs to be a certain thickness to be able to withstand the 3D print process.

We would advise structural and external walls to have a minimum metal thickness of 0.8mm with smaller elements such as claws or small setting bezels to have a minimum metal thickness of 0.5mm.

Earring posts will not be printed as the length and thickness does not print well. We would advise that these are soldered on to the piece after it has been printed.

Watertight models

You can create details such as embossed or recessed images and lettering on pieces but sometimes a post print process will give better results especially with text.

Raised text must be 0.30mm thickness at a minimum and no more than 0.60mm high with a spacing of 0.30mm between letters.

Recessed text must be 0.30mm thickness at a minimum and no more than 0.50mm deep with a spacing of 0.30mm between letters. We would also recommend using a negative draft angle (taper). It is better to keep the width of the recessed areas larger than the depth.

For better results ensure there are no sharp edges and that any text is filleted/rounded.

Sprues and Shrinkage

Two edges that meet into a sharp point or edge will not print very well. This process prefers softer and rounded edges to get the best results.

If you do have a sharp external edge, we would recommend either thickening the edge to 0.30mm or using the fillet tool to create a soft 0.30mm radius. The same applies to a sharp internal edge.

It is better to have too much material in these places and you can sharpen the edges during finishing.

Finishing

Small holes should be avoided as they will cause issues during the process. Holes should be no smaller than 0.50mm at a minimum.

Fill the holes during the CAD process and if you do need to create pilot holes for setting then use a conical/spherical shape to create a guide for a drill to be used once printed. It is better to keep the width of the pilot divot larger than the depth.

To find out more call us: +44 (0)121 212 6498
Visit: cooksongold-am.com