

Production Standards

Best Practices for CAD/CAM Services

CAD/CAM SERVICES

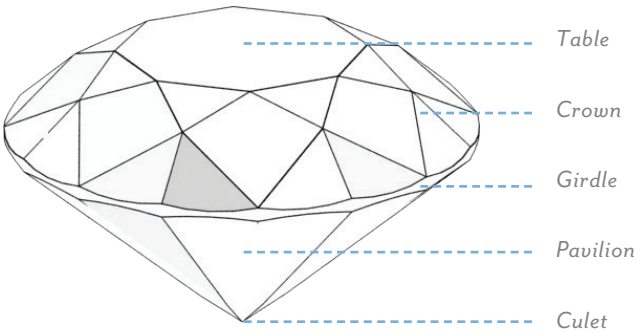
STULLER

THE BASICS

PREFERRED FILE TYPES

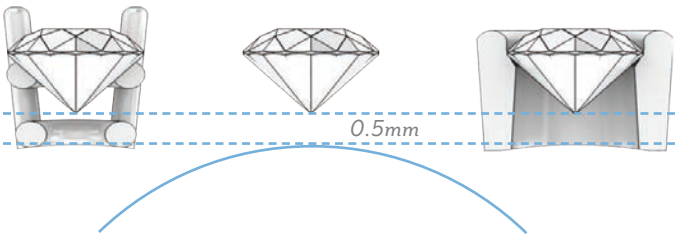
1. 3dm NURB files
   - not unioned/joined; not one solid mesh
2. STL files are accepted
   - Please leave gemstones in the files. If your software does not provide this, please provide ALL stone sizes.

PARTS OF A STONE

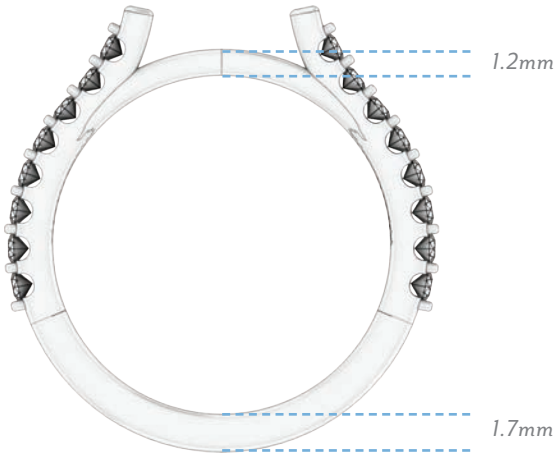


KEEP IN MIND

Stones must have a minimum clearance of 0.5mm from the culet to the finger rail.



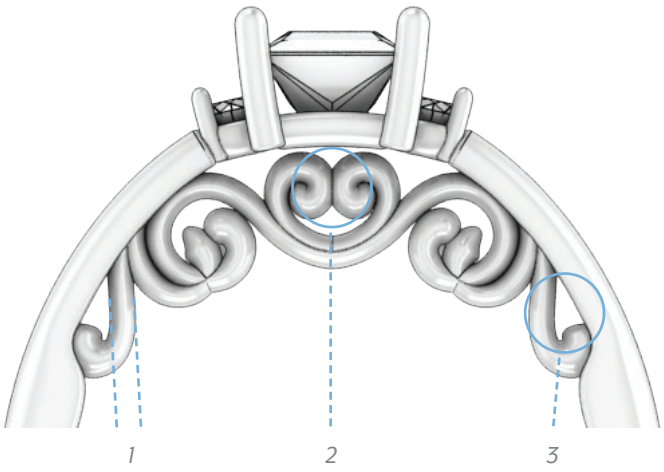
We recommend the minimum shank thicknesses pictured below because, on average, production can remove up to 0.2mm of metal.



1. Design elements and scroll work should have a minimum metal thickness of 0.5mm.

2. To strengthen the integrity of the design, all design elements should overlap each other by 0.15mm.

3. All openings in a design should be a minimum of 0.4mm to avoid being filled in during casting or causing investment relocation.



PRONG SETTING

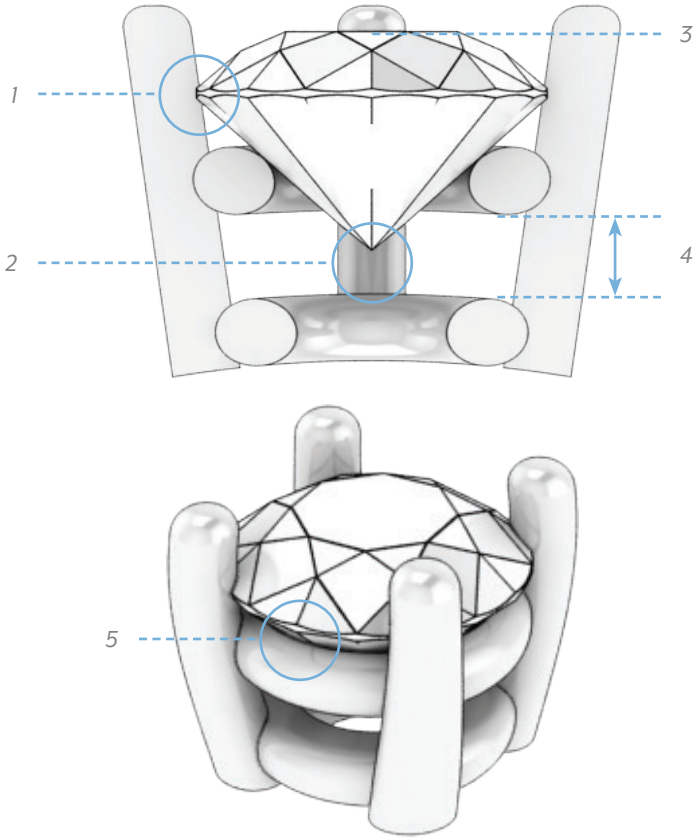
1. The prong must overlap the girdle of the stone, but the seat for the stone should not cut any deeper than 25% of the prong.

2. Typically, the culet of the stone is visible above the bottom gallery rail.

3. The base of the prong dome should align with the table of the stone for all set types, including pinpoint setting for melee stones.

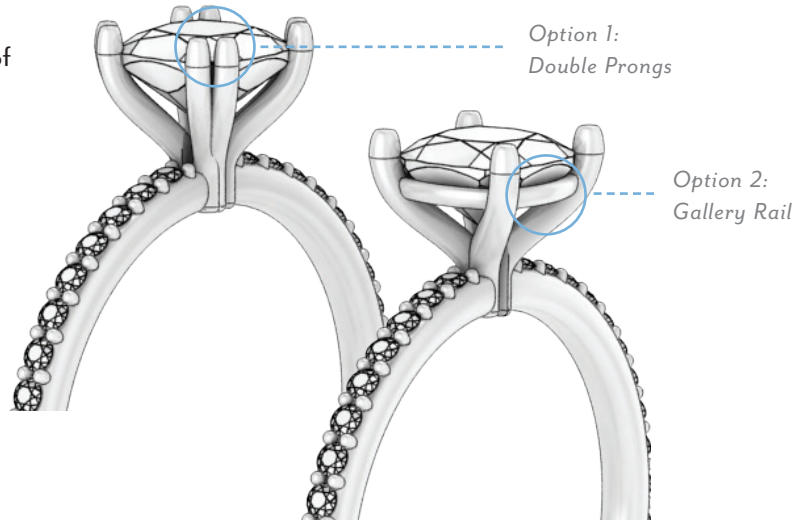
4. The minimum distance needed between the gallery rails/bearings is 0.4mm.

5. The pavilion of the gem should barely rest on the surface of the rail.



PRONG-SET CUSHIONS

Corners of cushion-shape stones can vary. Cushions with rounded corners can easily rotate and fall out of a prong setting.



SHARED PRONG AND PINPOINT SETTINGS

1. Stones set with shared prongs are suspended and secured by the prongs.

   Prongs must be moved into place and finished separately. This set type requires more time and a higher skill level than pinpoint.



2. Stones set with pinpoint setting are set within a channel, which helps position and secure the stones.

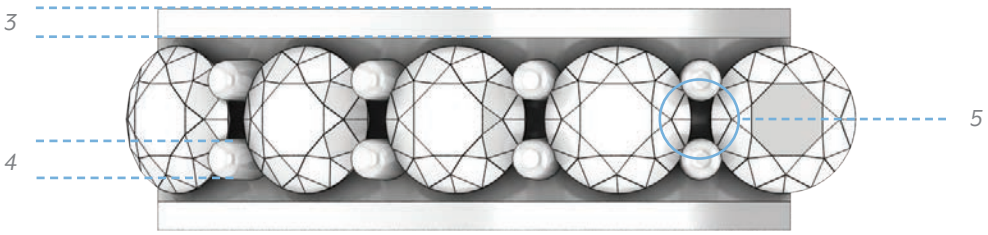
   A beading tool moves and finishes the prongs with one quick motion, making it the fastest set type.



3. Melee stones set with pinpoint setting need a minimum channel wall thickness of 0.4mm.

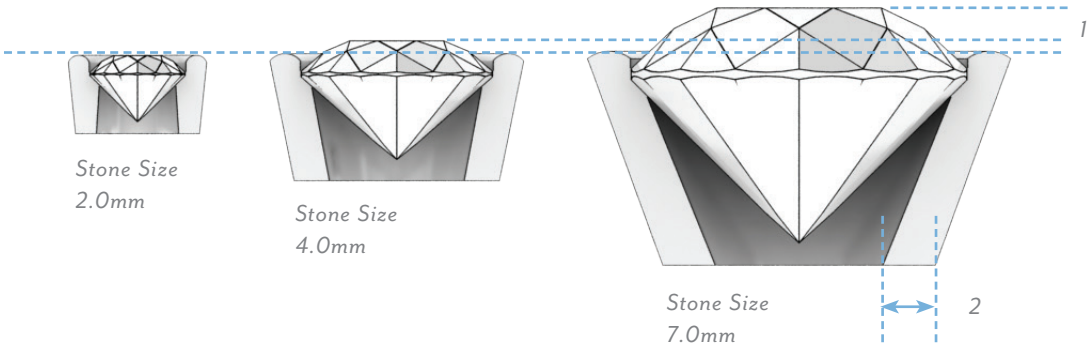
4. Prongs for the pinpoint setting must have a minimum prong diameter of 0.45mm.

5. The minimum spacing in between the stones in a pinpoint setting, measured from girdle to girdle, is 0.15mm.



BEZEL SETTING

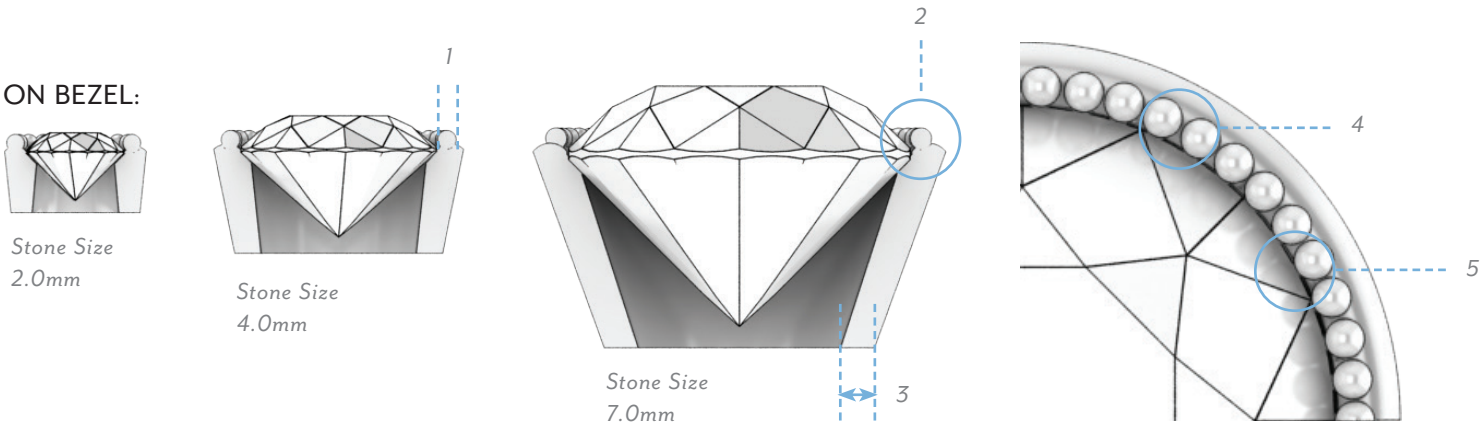
1. Note that as the stone size increases, the table of the stone rises above the top surface of the bezel.
2. The thickness of the bezel wall must be a minimum of 0.45mm.



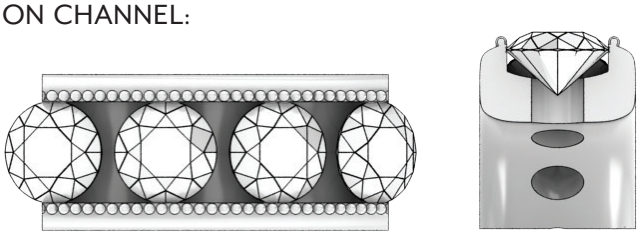
BEAD SETTING ON BEZEL OR CHANNEL

1. Regardless of the stones size, the beads must be no larger than 0.5mm and no smaller than 0.4mm.
2. 70% of the bead should be visible above the top surface of the bezel.
3. The thickness of the bezel wall must be a minimum of 0.45mm.
4. Beads must not be touching. Minimum spacing of 0.01mm required in between the beads.
5. From a top or looking down view, the beads must barely touch the gem.

ON BEZEL:



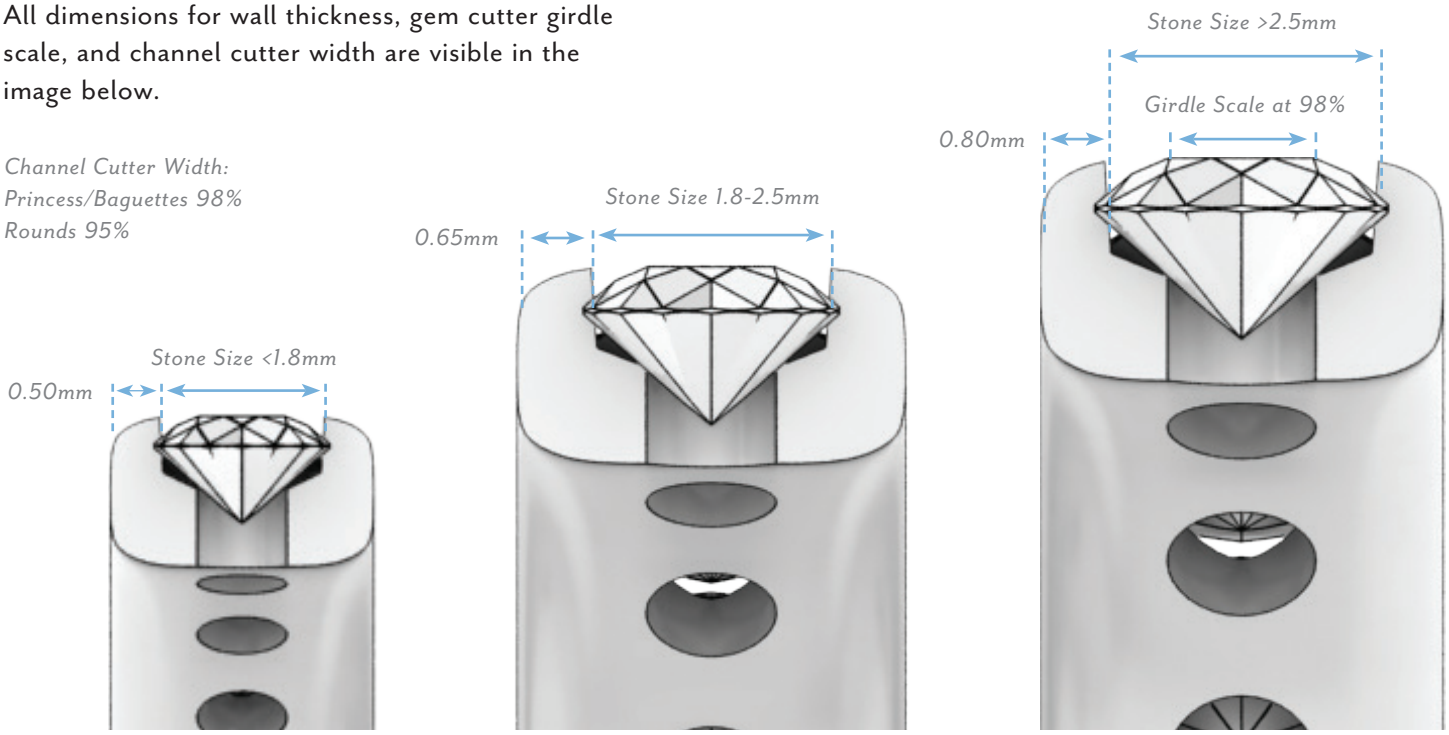
ON CHANNEL:



CHANNEL SETTING

All dimensions for wall thickness, gem cutter girdle scale, and channel cutter width are visible in the image below.

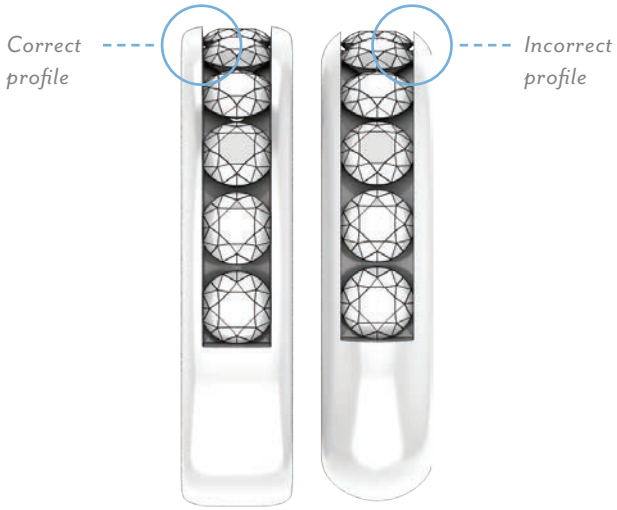
Channel Cutter Width:
Princess/Baguettes 98%
Rounds 95%



SHANK PROFILE FOR CHANNEL SETTING

From the side view, it is obvious that the thickness of the channel wall has been compromised by the shape of the shank profile. Therefore, the channel profile height must be increased to accommodate for the profile shape.

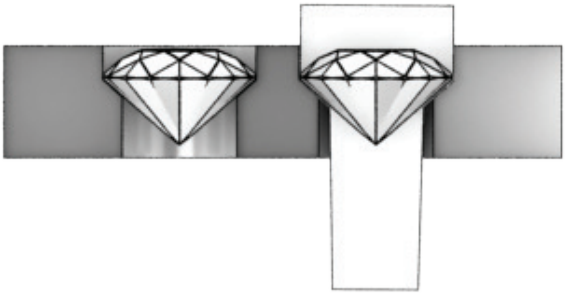
The profile of the shank causes the channel wall thickness to be misleading. From the side view, the thickness appears to be correct.

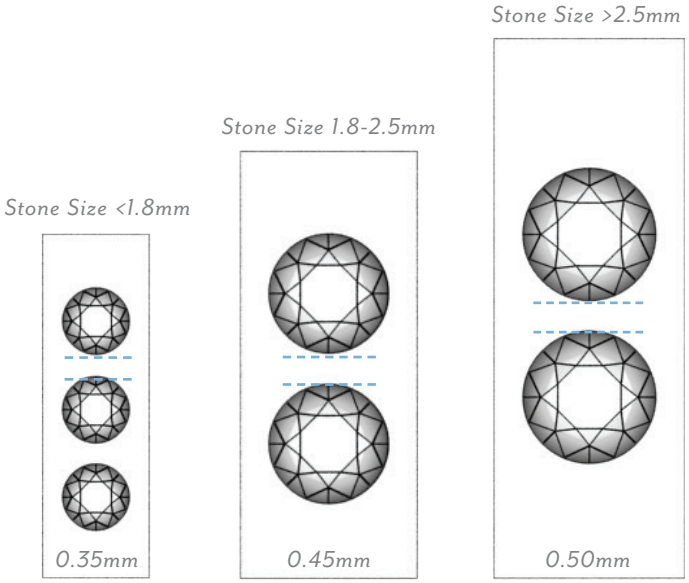


GYPSY/FLUSH SETTING

Use a gem cutter to remove all of the metal above the girdle of the stone.

All dimensions for wall thickness, minimum stone spacing, gem cutter, and gem cutter girdle scale are visible on the image.

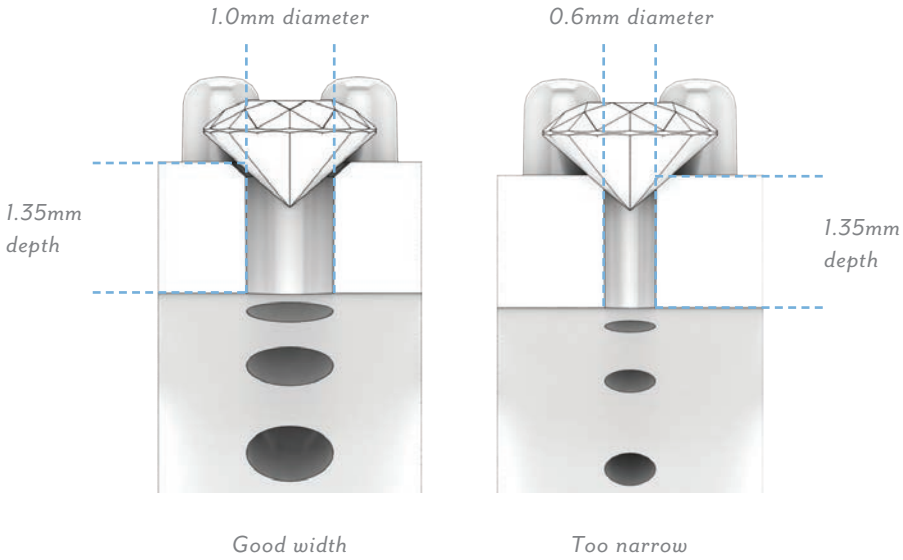




PILOT HOLES AND DIVOTS

Pilot holes, as well as any openings in a design, can be added if the depth of the opening is no more than double the diameter (see examples below). If the opening is too narrow, it causes casting defects such as investment relocation.

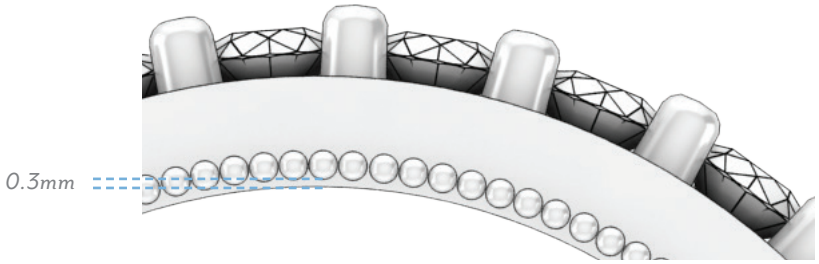
Divots are used in place of a pilot hole if a pilot hole cannot be added.





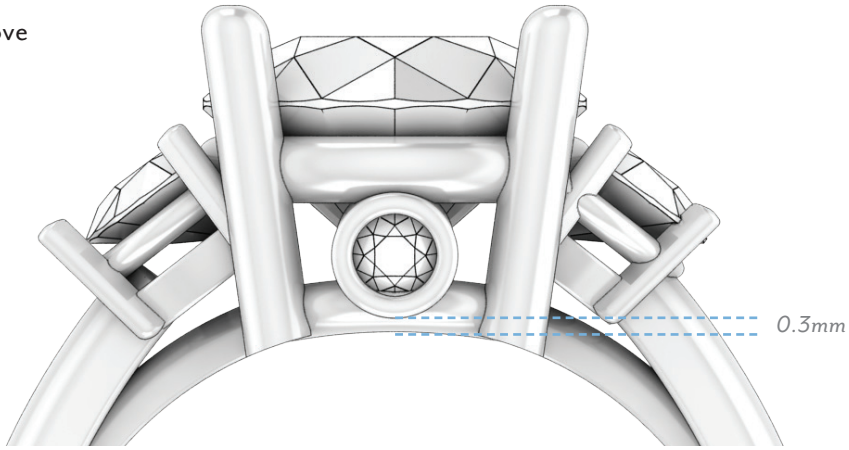
MILGRAIN ON FINGER RAIL

Milgrain must be a minimum of 0.3mm above the finger rail.



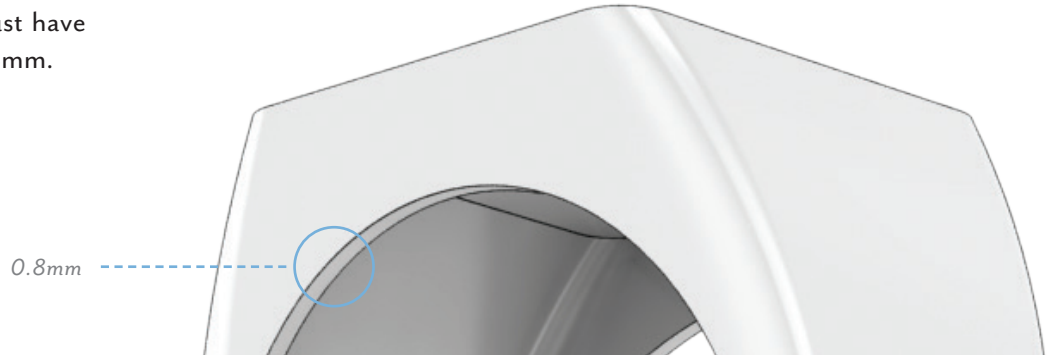
SURPRISE GEMS

Surprise gems must be a minimum of 0.3mm above the finger rail.



HOLLOWED OUT

Structural and external walls must have minimum metal thickness of 0.8mm.



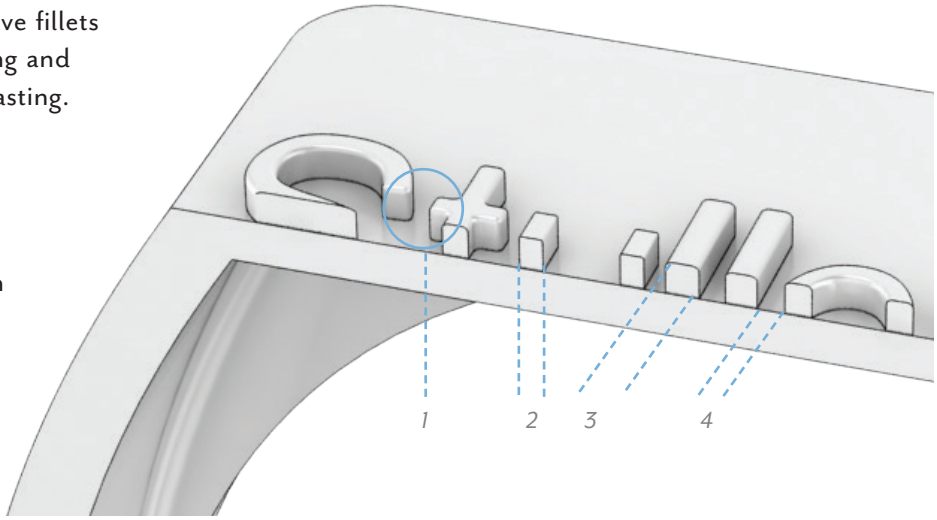
RAISED LETTERS

1. All of the edges of the letters should have fillets and rounded corners to help with casting and to avoid investment relocation during casting.

2. Raised letters need a minimum metal thickness of 0.3mm.

3. Raised letters should not be higher than 0.6mm above the surface of the metal.

4. There should be a minimum spacing of 0.3mm in between the raised letters.



RECESSED LETTERS

1. The bottom surface of the letters should have fillets on all edges and rounded corners to help with casting and to avoid investment relocation during casting.

2. Recessed letters must have a minimum width of 0.3mm.

3. The same standard for openings applies to recessed design elements. Therefore, the depth of recessed letters can be no more than double the width.

