3D PRINTING DESIGN GUIDE

AX3D

3D PRINTING DESIGN GUIDE

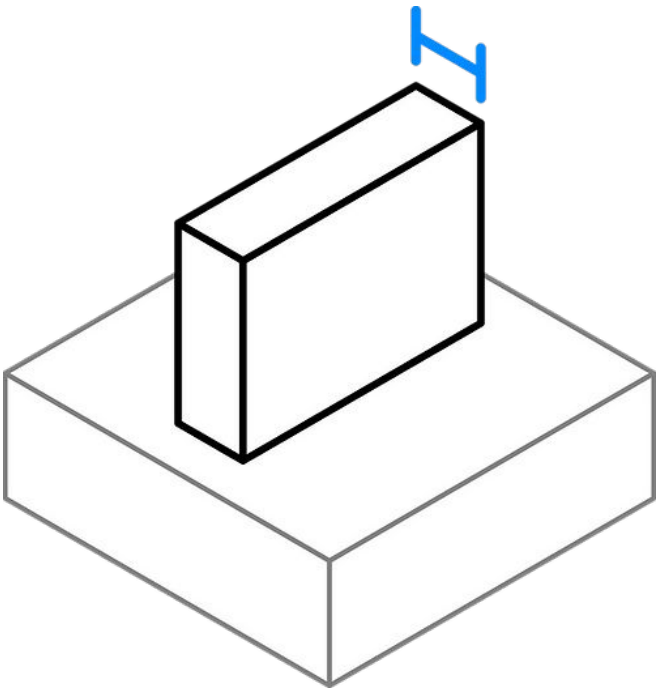
This document is intended to help you ensure your part can be manufactured using our 3D printing service. If this design guide is not followed we cannot guarantee the quality or delivery of you part.

Some part designs that do not follow this guide may print successfully however, following this guide will guarantee your part will print successfully.

Parts can be ordered using our 3D printing quote form here: https://forms.gle/Jxm2SXaFVmR1NBjCA

The full guide and FAQ can be found on our website: ax3d.co.uk/design-guide

WALL THICKNESS

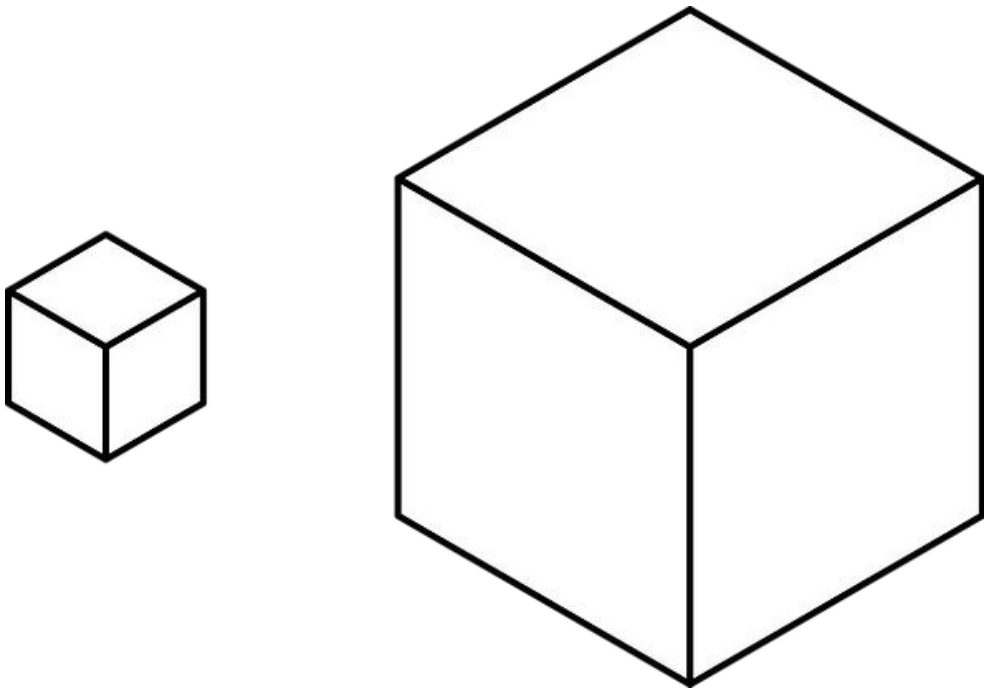


Wall thickness

Wall thickness can affect the printability of a part. Walls which are below 1mm risk damage during the production process.

Minimum	1mm

PART SIZE

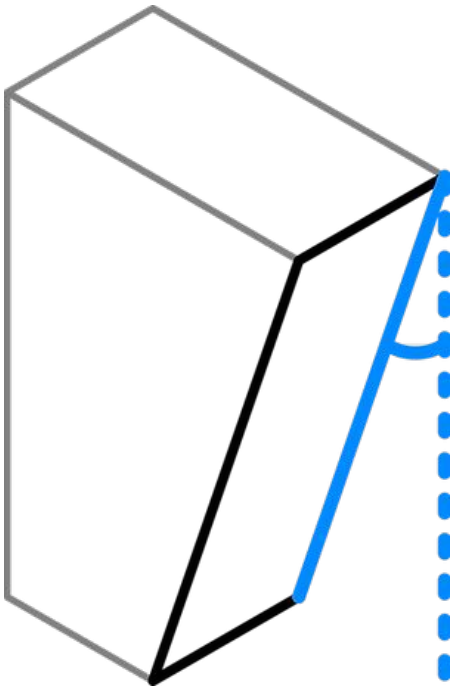


Part size

Parts which exceed our limit are not compatible with our machines and equipment.

Minimum	5 x 5 x 5 (mm)
Maximum	256 x 256 x 256 (mm)

OVERHANG ANGLE

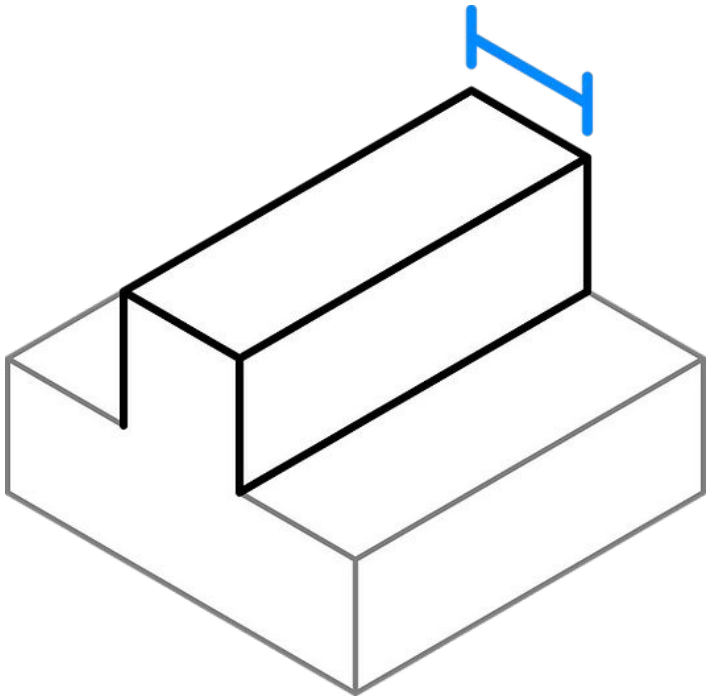


Overhang angle

Areas which exceed 40° (from vertical) do not have adequate support to print mid-air. Support material can be used but it may alter the surface finish.

Maximum	40° (from vertical)

EMBOSSED DETAILS

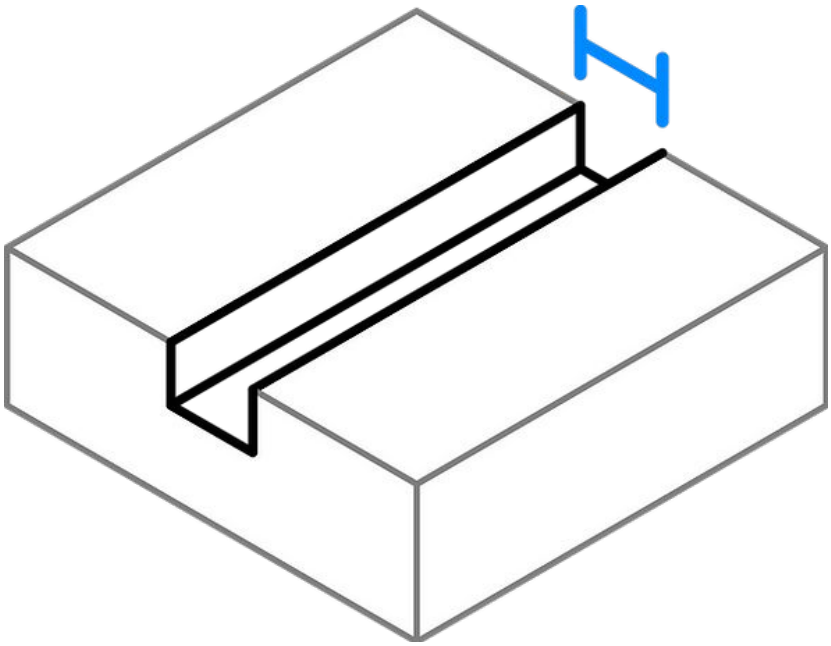


Embossed details

Raised areas on a part allow the use of text and pattern. Details which are too thin risk damage during production.

Minimum	0.8mm

DEBOSSED DETAILS

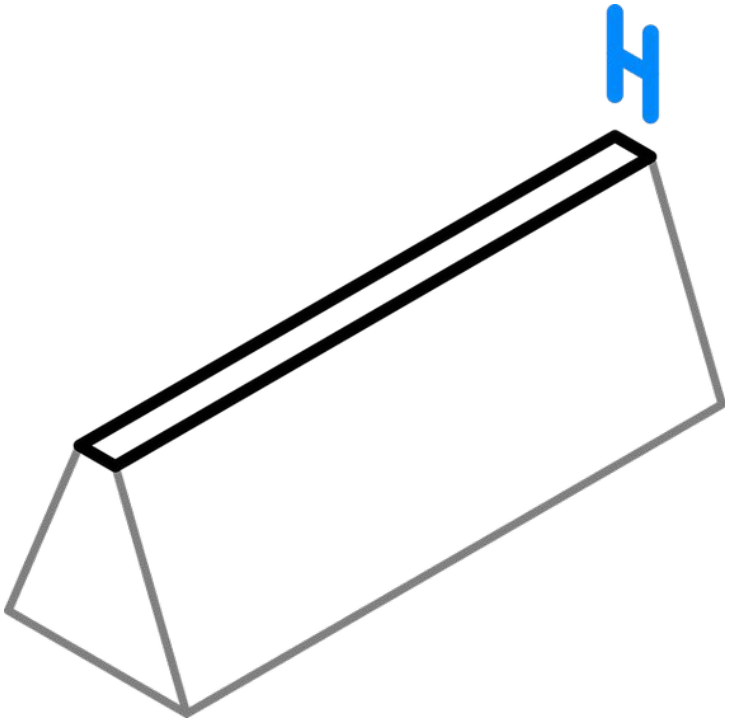


Debossed details

Engraved areas on a part allow the use of text or patterns. Details which are too thin risk damage during production

Minimum	0.8mm

EDGE THICKNESS

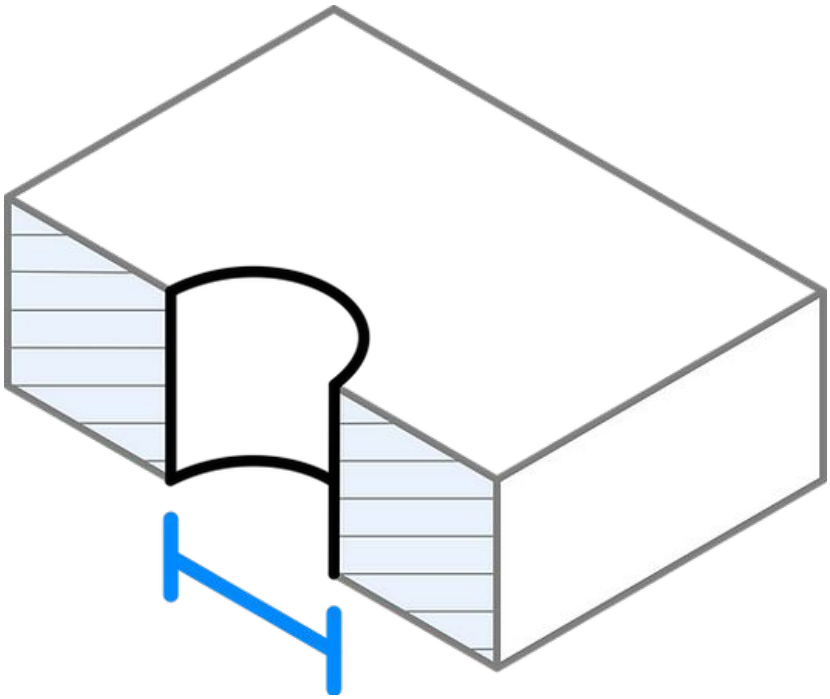


Edge thickness

Edges that taper to zero thickness may be damaged during the print process.

Minimum	0.6mm

THROUGH HOLES

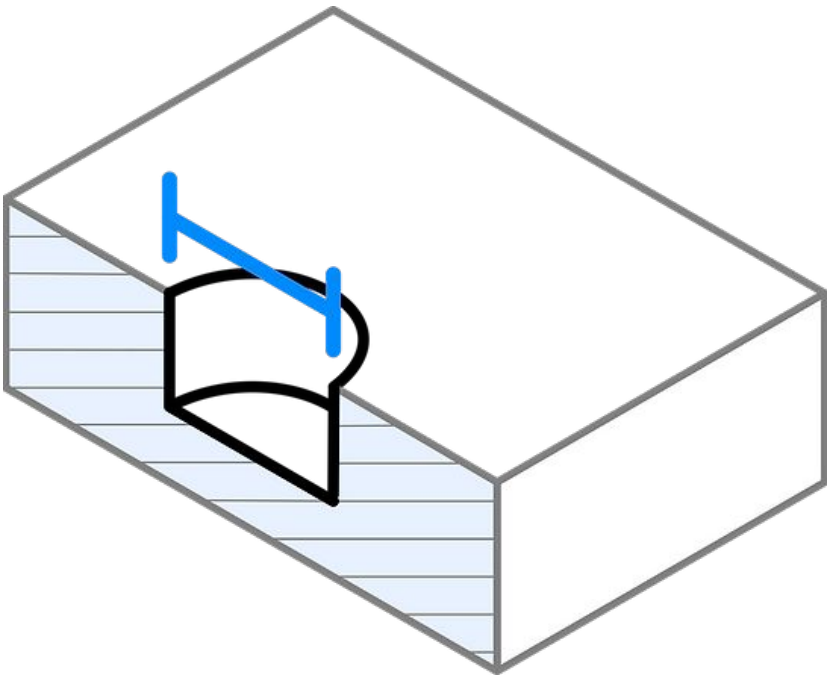


Through holes

To prevent print failure, a hole diameter of at least 0.8mm is necessary

Minimum	0.8mm

BLIND HOLES

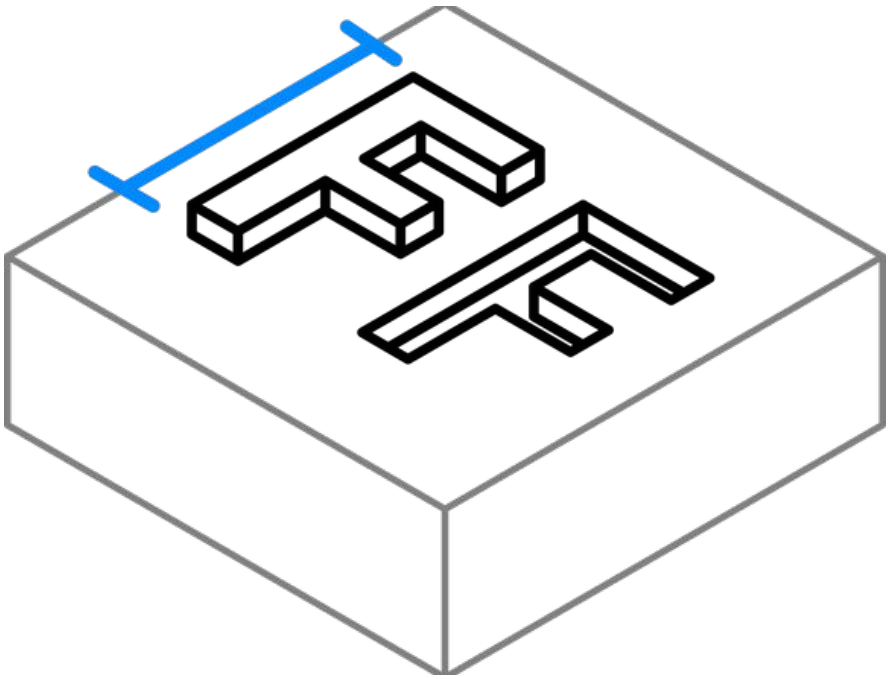


Blind holes

To prevent print failure, a hole diameter of at least 0.8mm is necessary

Minimum	0.8mm

TEXT SIZE

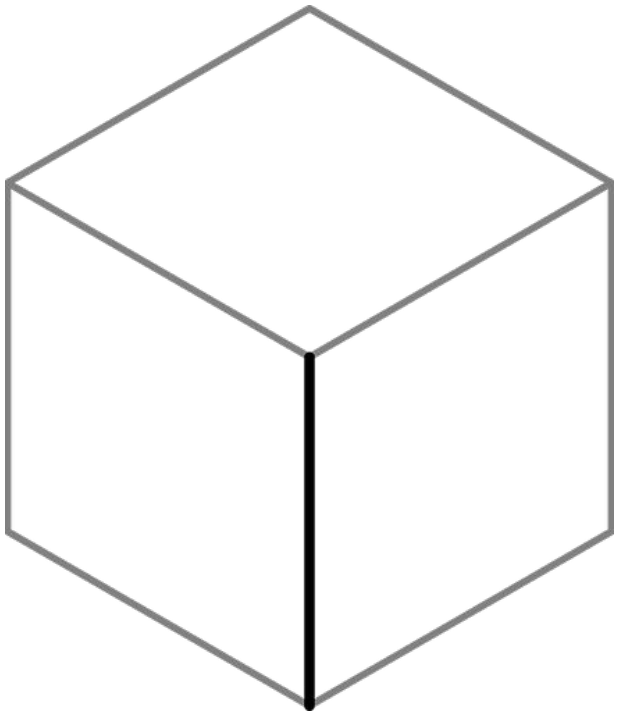


Text size

Small text may become invisible when printed.

Minimum	2mm (height)

SHARP CORNERS

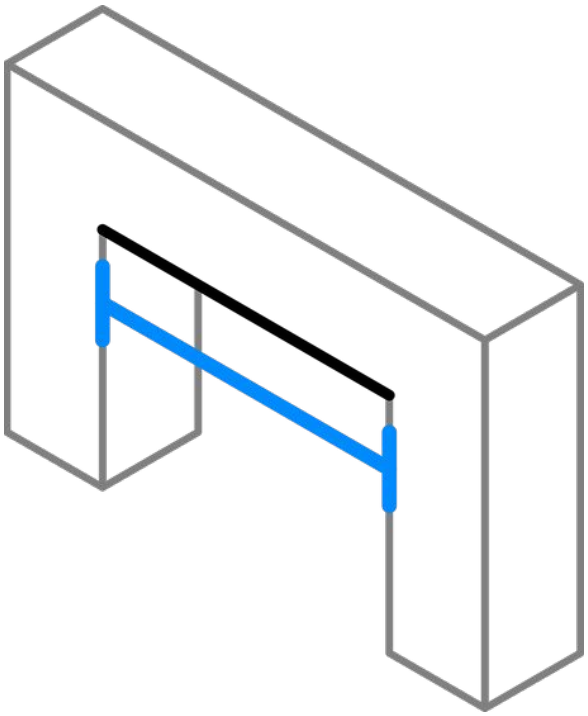


Sharp corners

Square or sharp corners will be rounded. Adding a fillet at least 1mm in radius can reduce this effect.

Minimum	1mm (radius fillet)

BRIDGES

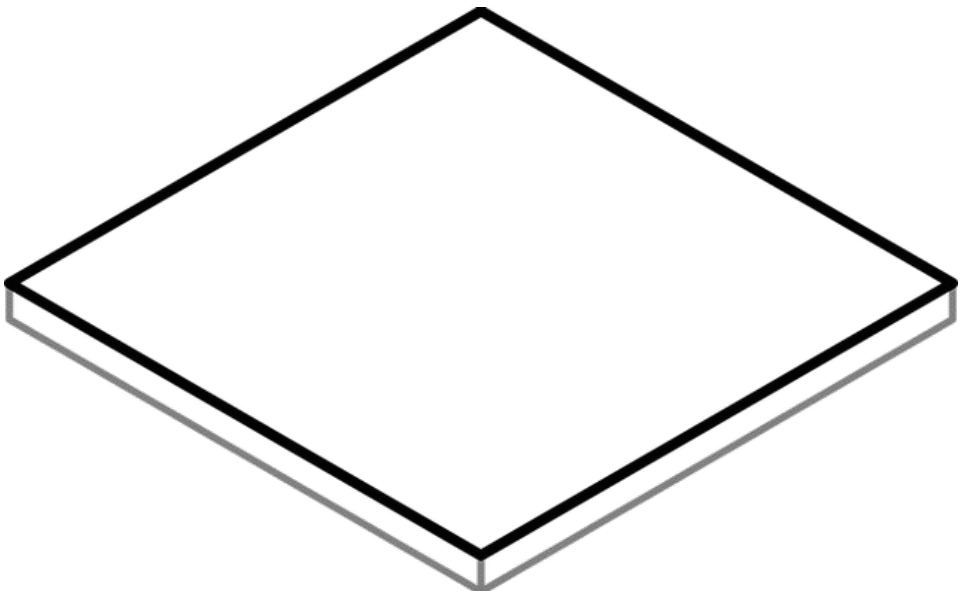


Bridges

Floating regions without support may droop or sag. Support material can be used but may alter the surface finish.

Maximum	10mm

FLAT PARTS

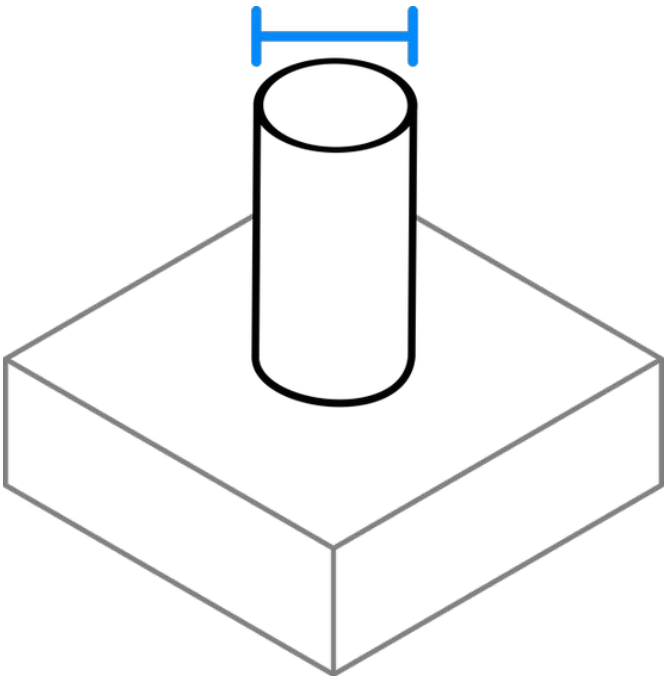


Flat parts

Large flat parts tend to warp and deform during printing. Adding support ribs or reducing the area of a face can help.

Maximum	1000mm^3

PIN DIAMETER

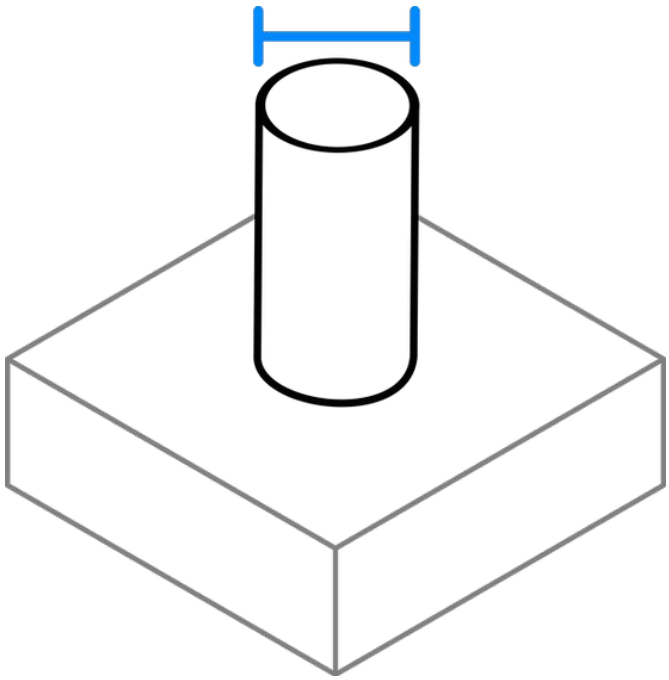


Pin diameter

Pins may snap or deform during printing. Adding a draft angle or increasing diameter can help.

Minimum	3mm

ASSEMBLY CLEARANCE

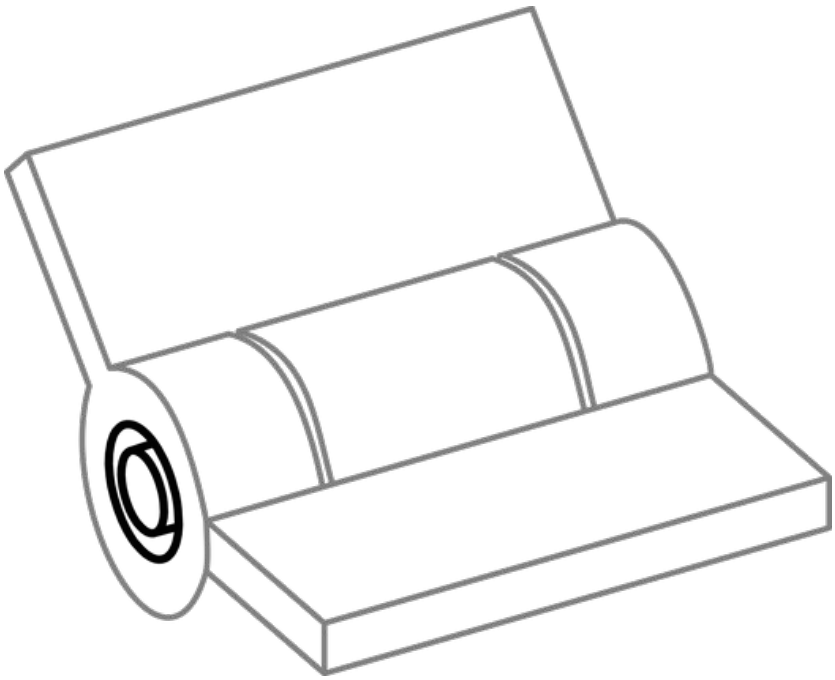


Assembly clearance

For parts which will be slotted together after printing, a tolerance must be added.

Free fit	0.5mm
Friction fit	0.2mm

MECHANISM CLEARANCE



Mechanism clearance

Pre-assembled or ‘print in place’ mechanisms may fuse together if too close.

Minimum	0.5mm