3D Printing Guidelines and Requirements

Guidelines are generalised and are very much geometry dependant.
Results and requirements can vary between technologies and materials.
Whilst we take every care to check your parts for below features, potential failing features sometimes make it past. Please check your data against the notes below and let us know if a further discussion is required.

Expected tolerances
HP MJF ± 0.2-0.3% (with lower limit ± 0.15mm)
Polyjet ± 0.1% (with lower limit ± 0.1mm)
FDM ± 0.15% (with lower limit ± 0.15mm)
SLA ± 0.1% (with lower limit ± 0.075mm)
Micro ± 0.05 – 0.01mm

Data files
STEP files are preferred for 3D Printing: if using STL please ensure the resolution deviation is 0.37mm and the resolution angle is 2.3°

Minimum wall thickness (geometry, aspect ratio and support dependant) (Please double check tapered edges)
HP MJF 0.8mm
Polyjet 0.6mm (rigid) 1mm (flexible)
FDM 1mm
SLA 0.6mm
Micro 0.1mm

Unsupported walls/rods/pins
Features with high aspect ratios can be subject to warpage or breakage. Consider design and technology options for delicate features.

Component iterations
Please be clear upon point of order which part issue is required.

Support removal and hollow features
Parts require adequate access for support material to be removed post-print. If access is limited, we will always try our best to remove as much as possible.

SLA support removal
SLA supports leave small pips on contact points. This are broken away as standard but for additional surface finishing please make us aware of your requirements.

Warpage
Features with high aspect ratios can be subject to warpage or breakage. Consider design and technology options.

Engraving and embossing
HP MJF 0.6mm
Polyjet 0.6mm
FDM 0.8mm
SLA 0.3mm
Micro 0.1mm

Threads
Threads greater than M8 can usually be printed. Round, angled threads are suggested.
Below M8 we suggest either a cut thread post-print or a threaded brass insert – insert must have sufficient space to be accommodated.
Micro 3D printing threads can be much smaller. Please request discussion.

Threaded inserts
Threaded brass inserts require adequate wall thickness and hole size.
Please request to see our Tappex insert guidelines or see: https://www.tappex.co.uk/products/brass-threaded-inserts/multisert

Small & intricate features
Features which do not meet minimum wall thickness guidelines and engraving/embossing guidelines will potentially lack clarity or fail to form. Please refer to guidelines above, consider your technology/material options or get in touch with the team.

Clear clarity
Clear materials are considered translucent and not glass-like in clarity. Depending on the geometry we have options to lacquer or polish parts. Please get in touch to discuss these options.

Polyjet glossy top
Whilst providing additional clarity and surface finish on upward facing surfaces, be aware that downward facing surfaces are still matte finish and there is a transitional witness between the finish types.

Split parts & bonding
If parts are too large for a single print, we may need to digitally split them and bond them together post-print. Please let us know the finishing level required.

Clearance for moving features
As a general rule, 0.4mm clearance is required for moving assemblies.

Special application requirements:
Please inform us if your part has a special requirement for:

Heat
Flame retardancy
Specific material
Ductility
Surface finish
Accuracy
Strength or performance features

The IPFL team will be able to make recommendations to best accommodate your requirements.