

Our team comprises highly experienced prototype engineers, model makers and finishers. We operate to a quality management system which is approved and certified to ISO 9001-2015 standards (certificate available on request).

3D Printing

Please note dimensional tolerances (Accuracy) vary on part geometry and build orientation, dimensions measured that are within $\pm 0.5\text{mm}$ will be released as ok, unless specific tolerances are required and requested at time of quote, this request may affect build orientation, delivery time and cost.

Layer thickness has no relevance to dimensional tolerance (Accuracy) with any process.

Small features: RP processes cannot form every feature, if your part has a feature which is below 1mm in any dimension then please inform us before we quote as we will need to interrogate the part to see what is the best orientation for building, if the part has features below 0.6mm (see table below for each process) then these will not form, we will not check for small features during the quoting stage unless specifically advised prior to receiving any data.

	Build Modes	Layer Thickness	Laser Beam Diameter		Features this small won't form
			Fine Feature	Larger Feature	(guidance only)
SLA*	UHD*	100 μ	75 μ	750 μ	< 0.3 -0.5mm
	XHD*	50 μ	75 μ	750 μ	< 0.3-0.5mm
*Intelligent Scanning Strategy: Automated build Scanning -Fine Feature/Outer Surface Scanning & Larger Feature/Internal Surface Scanning					

	Build Modes	Layer Thickness	Laser Beam Diameter	Features this small will not form
SLS	Normal	0.1mm	0.4mm	< 0.6mm
FDM	Normal	0.254mm	N/A	1mm
Polyjet	Standard	0.030mm	N/A	< 0.5mm

CNC

We can machine from 3D CAD files, we do not need a 2D drawing unless specific tolerances/thread/detail is called for, all parts will be machined to a general machining tolerance applicable to the material selected unless as specific tolerance is required and advised of at time of estimating, details received after quoting and order placement may require re quoting. Inspection reports need to be requested at time of quoting.

- General Machining tolerance: $\pm 0.1\text{mm}$
- Any dimension reports required (F.A.I.R) must be requested at time of estimate request, if these are requested after we have submitted our estimate then we reserve the right to submit advised costs and timing schedules to cover the extra work required.
- we will only measure to two (2) decimal places.
- If First off or samples are required for inspection by the client before production can commence then this must be requested at the time of estimating. Approval must be given within 2 working days of receiving the 1st off or sample, failure to approve will result in the order being rescheduled.
- Only Critical dimensions will be measured, these need to be highlighted on the 2D drawing.
- Production inspection quantities: 10% of total quantity (must be requested at time of ordering)
- Certificate of Conformance: Available upon request at time of ordering (Charge applied)
- RoHS Material Statement: Subject to supplier availability and must be requested at time of order.

Laser Cutting

- 0.1mm tolerance per 100mm (X & Y) + material tolerance (Z)

Vacuum Casting

- If First off or samples are required for inspection by the client before production can commence then this must be requested at the time of estimating. Approval must be given within 2 working days of receiving the 1st off or sample, failure to approve will result in the order being rescheduled.
- Silicone tooling has a limited production life, this is dependent of the geometry of the part being made and the Polyurethane material being used, we do not guarantee tool life and will advise on tool life if the required production quantity will not be met due to tool degradation
- SLA Master Patterns and Tooling (Hard/Soft) will be kept for 6 months after the order has been completed, if tools are required to be kept for longer then this should be requested (by e-mail) at the time of the order or within the 6-month period.
- Polyurethane takes approximately 7 days to obtain its full mechanical properties.
- Parts should be: stored at room temperature, away from UV light (unless UV stable material is used) and kept in suitable packing.

Dispatch & Finishing Levels – 3D Printing

Dispatch Levels

We offer delivery to clients within a 15-mile radius of Royston.

Delivery to clients outside the 15-mile radius of Royston will be via Royal Mail Next business day before 1pm service or equivalent, for which there is a charge. Other delivery options are available, please ask.

When requesting a quote or ordering please specify the following:

Express	Next working day dispatch if quoted before 4pm and ordered before 5pm*
Standard	dispatched in 3 working days
Economy	dispatched in 5 working days
Super Economy	dispatched in 10 working days

*subject to process, part size and build time and capacity

If you are a local client and have ordered our express service, we will aim to make our deliveries during the morning, however this not guaranteed and is subject to workshop planning during the morning of the dispatch day. If you require your parts by a specific time, then please advise us at the time of estimate request.

For a general guide to the finishing we offer please view the next page, please note this is a general guide for your reference, please contact us if you require something else or additional to the list.

		Finish Level		
		Basic*	Standard	Detailed
Dispatch Level	Express*	✓	✓	✗
	• If your parts require lacquering additional drying time maybe required			
	Standard	✓	✓	✓
	Economy	✓	✓	✓
	Super Economy	✓	✓	✓

Finish Code	Description of finishing process	Process	Material
B1	Support witness marks left on down facing surfaces	SLA	ALL
B2	Support witness marks removed ("A" Surface only)	SLA	ALL
B3	Support witness marks removed ("A" Surface only) and a light bead blast	SLA	Opaque
B4	Support witness marks removed – 1 coat of clear lacquer	SLA	Translucent
B5	Support removed washed in cleaning solution	Polyjet/FDM	ALL
B6	SLS Cleaning	SLS	Nylon
B7	Lacquer to seal surfaces - B2 or B6 finish will be applied first	SLA/SLS	ALL
B8	Polish (SLA translucent materials only)	SLA	Translucent
S1	SLA Build lines removed and light bead blast to smooth surfaces (clear materials will have a frosted appearance)	SLA	ALL
S2	SLS Surfacing	SLS	Nylon
D1	Primer coat - Grey/White ("A" Surface only)	SLA	Opaque
D2	Paint surface finish: Satin, Gloss, Textured (fine, medium, course) ("A" Surface only)	SLA	Opaque
D3	Lacquer - To give gloss effect ("A" Surface only)	SLA/SLS	ALL
D4	Rubberised - soft feel plastic coating to painted surface ("A" Surface only)	SLA	ALL
D5	Colouring	SLS	Nylon
D6	Assembly including fitting of inserts/ helicoils	ALL	ALL
D7	Lacquer to give maximum clarity on Clear SLA parts (geometry specific)	SLA	Translucent
D8	BLACKOUT/ RFI/EMC coating to internal "B" surfaces	ALL	ALL
Medi	Cleaning according to USP CLASS VI standards - no post or pre work to be carried out	SLA	Accura ClearVue