

prototypeprojects

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**CNC MACHINING**  
LOW VOLUME PRODUCTION



## LOW VOLUME PRODUCTION

Whether you require CNC prototyping or low volume production, our facilities are optimised to meet your needs while upholding the highest standards of quality and reliability. With our dedication to excellence and decades of experience, we ensure that each component meets your specifications with consistency and accuracy. For our Low Volume Production CNC work, the following criteria needs to be taken into account.

## MATERIALS

We primarily work with aluminium and engineering plastics. Our engineering plastics include black and white acetal/Delrin, chosen for their rigidity, which is essential for our machining processes.

Materials choices for low volume production are: aluminium, black and white acetal/Delrin, nylon and PEEK.

Materials like PTFE are not suitable for our volume service.



## BILLET SIZE

Our machines are configured to handle two main billet sizes: 100mm x 100mm x 90mm and 150mm x 50mm x 40mm. It's crucial that parts fit within these billet dimensions for processing.

Additionally, the maximum part bounding box size should be smaller than the billet dimensions to facilitate material removal from all sides. However, we can accommodate smaller parts with a range of billet sizes available.

## PART GEOMETRY

We offer flexibility in part geometry, with machining capabilities spanning 3, 4, or 5 axis movements. This includes both 3 + 2 and full 5 axis simultaneous movements, ensuring versatility in manufacturing complex components.

## TOLERANCE

Accuracy is paramount in our operations. Parts are machined to a standard tolerance of  $\pm 0.1\text{mm}$ , unless otherwise specified. If provided with drawings, we strictly adhere to the specified tolerances. We can achieve dimensional tolerances of  $\pm 0.05\text{mm}$ , with the exception of holes, which can be machined down to  $\pm 0.02\text{mm}$ .

## LIMITED FACTORS

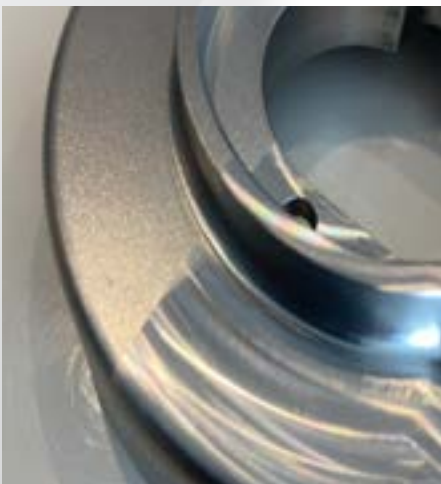
Certain limitations apply to part design. Square internal corners in the XY plane cannot be machined; instead, a radius must be left in these areas. The size of the radius depends on part geometry and accessibility. Keyways are an exception and can be broached, provided there's an undercut for relief.

## FINISHING OPTIONS

Our commitment to quality extends to finishing processes. All parts undergo deburring to eliminate sharp edges and are washed to remove grease and oils, ensuring a clean final product.

Additionally, we offer vapour honing and bead blasting services to remove machining marks and improve surface finish. Vapour honing, which includes water in the process, results in a cleaner final product.

Plating/anodising services are also available, although these are subcontracted to trusted partners.



## INSPECTION

Quality assurance is integral to our processes. Parts can be inspected according to customer requirements. As a standard practice, we inspect the first part, last part, and critical dimensions of every tenth part. Inspection reports are available upon request.

## CONSIDERATIONS

While adherence to the above criteria is preferred, we understand that some flexibility may be necessary in part dimensions. We can cater for small increases in these dimensions for batch sizes exceeding 100 parts, however additional robot programming and setup time may be required, which will be factored into the unit pricing.

## CAN WE HELP YOU?

We are always happy to offer our advise so please do either contact our Business Relations Team to discuss your needs, or contact us to arrange a tour of our facilities.

## BUSINESS RELATIONS TEAM

Our Business Relations Team manages everything from customer quotations, to fulfilment, dispatch and invoicing. If you'd like to meet the team, please get in touch.

## TAKE THE TOUR

We encourage our customers to visit our prototyping bureau in Royston so we can show you our full range of services and answer any questions about your next project. If you would like to arrange a tour, please contact us.

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