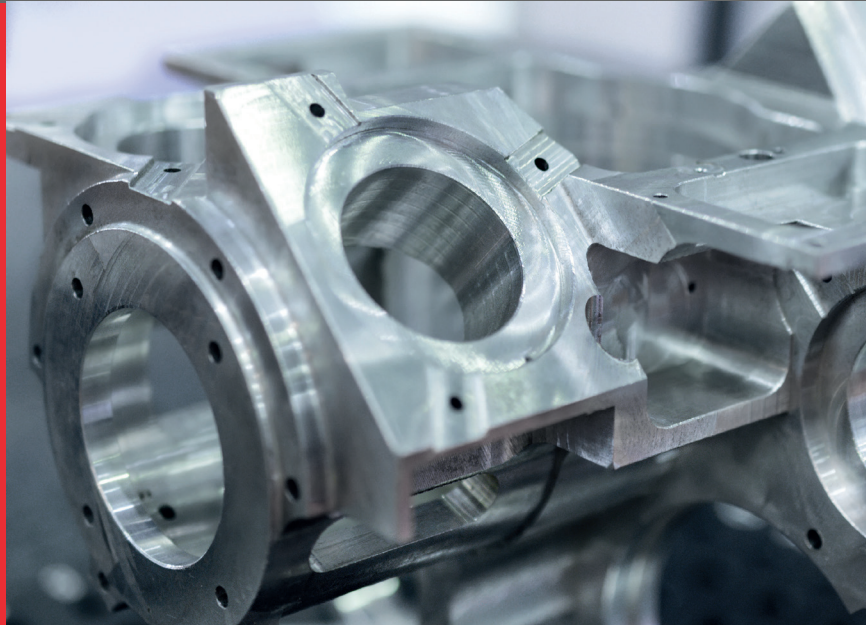


If you need incredibly accurate, high quality parts with an excellent finish that can be replicated hundreds, or even thousands, of times, CNC machining could be the reductive process you need.

A vast range of part types and features can be produced depending on which CNC process is used - milling, turning or grinding.



## What is CNC machining & milling?

CNC is a “reductive” process whereby parts are produced via physical removal of material using computer controlled milling, turning or grinding by sophisticated computer controlled machines.

CNC machine types include simple mills with linear and rotary movement, lathes and more complex machines with multiple axes that can work multi-dimensionally to produce highly accurate parts which may be used for form, fit and functional testing.

The CNC process involves sending a complex program which has been processed using a 3D machining program to generate the required cutter paths to the CNC machine which then runs an automated process to carry out the required ‘machining’ procedures.

The CNC machine can be programmed to repeat the process, so multiple parts can be replicated to the same specifications.

## What capacity does Prototype Projects have?

We operate a suite of five CNC machines capable of CNC machining, milling turning, spark erosion and surface grinding. This means we can fulfil almost any CNC machining requirement.

## What CNC machining materials are available?

Numerous types of metal and plastic material can be machined using CNC machining. We keep a stock of commonly used materials in-house including:

- ▶ Nylon
- ▶ Acetyl
- ▶ PEEK
- ▶ Aluminium

Other materials are available quickly from our suppliers.

Properties of the final part depend on the source material.



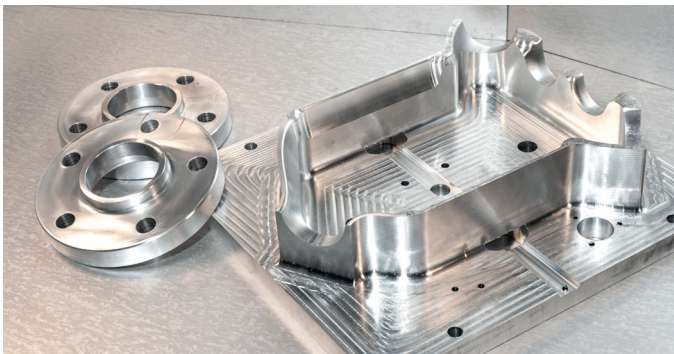
## CNC Benefits

- ▶ **Speed:** The fully automated aspect of CNC milling and turning means that production times are cut dramatically
- ▶ **Accuracy:** Through the use of computer CAD and CAM programming, it is possible to achieve incredible accuracy that is measured in microns
- ▶ **Repeatability:** Once created, the programme can be used to produce exact copies of the original prototype to precise specifications
- ▶ **Quality control:** The consistency of CNC milling and turning means that quality control for longer batch runs is easier to maintain
- ▶ **Cost effectiveness:** A programmable and repeatable system lowers the unit price of each part, making larger production runs easier to cost manage

## CNC Express

If you need your CNC part(s) fast, choose our CNC Express service.

- ▶ Lead time will depend on the exact specification and size of the part
- ▶ Post Process applications (such as anodising) are not included in our CNC Express lead time (see opposite for Express Service Requirements).



## Express Service requirements

The following requirements can affect lead time:

- ▶ Standard threads only:
  - ▶ Tapping: M2 – M12 (Model drill hole size)
- ▶ General Machining Tolerance: +/- 0.1
- ▶ Hole Tolerance: H7
- ▶ Materials: Stock materials only/Free issue
- ▶ 3 Axis only
- ▶ Number of items and quantity of limited (Geometry specific)
- ▶ No Assemblies
- ▶ Minimum Rad:
  - ▶ Cutter Ø 0.5mm (0.25mm machined radius)
  - ▶ Cutter Depth: 5mm
- ▶ No post process finishing i.e. Anodising (can be done: lead time will be affected)
- ▶ Surface finish
- ▶ Machine marks visible (can be surface blasted on request)
- ▶ Inspection: Basic visual to CAD

## About Prototype Projects

We are an expert prototyping bureau providing rapid prototyping and model making services for clients across a range of sectors.

Established in 1980, we have built a reputation for service excellence. We aim to help our clients build and maintain a strong competitive edge in engineering design and production.

Underpinning our commitment to excellence and service quality is an ongoing process of investment in prototyping systems, expertise and technologies.

## Our service capabilities include:

- ▶ SLA (Stereolithography)
- ▶ SLS (Selective Laser Sintering)
- ▶ FDM (Fused Deposition Modelling)
- ▶ PolyJet
- ▶ DLP (Digital Light Projection)
- ▶ Vacuum Casting
- ▶ CNC Machining
- ▶ CNC Milling (4 Axis) & Turning
- ▶ Laser Cutting