



**CTR PRECISION ENGINEERING DIVISION**  
**The solution provider to your  
small batch component part and  
prototype machining needs – TODAY**

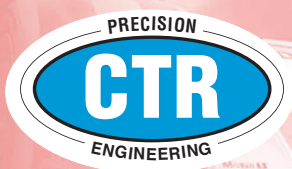
Through CTR's vigorous reinvestment strategy in leading edge technology machine tools and equipment, we can offer the ideal solution to your machining requirements. Whilst specialising in low volume, we have the core skills and flexibility that's been established over the years to fulfil your requirement regardless of batch size.

We serve an extensive range of industrial sectors including Automotive, Aerospace, Defence, Rail, Medical and Energy Sectors. In fact any sector can be covered where a machining process is required.

Our machining capabilities extend to CNC Turning, Fully Simultaneous 5 Axis Milling, conventional Milling, Honing, External and Internal Grinding. Hard Metal Machining incorporates the latest technology Wire and Spark Erosion EDM Techniques together with Diamond Hard Turning. All this is complemented with a range of conventional general engineering workshop machine tools. Component identification and marking is enhanced with the introduction of Laser Marking techniques. Alpha, numeric and logo's are all now computer generated with lasers providing greater precision with lasting durability.

Typically working to precise tolerances of 2-4 microns, and even less as per some customer's specifications, the commitment to high quality and customer service is second to none. Having originally achieved ISO 9001 accreditation, the company's Business Management System also extends to the exacting demands of the Aerospace Standard AS 9100. Full material and lot traceability is "the norm" whilst investment in the latest MRP software enables immediate feedback of customer order traceability.

***Through refocusing our synergies and strengths  
we can help resolve and deliver the solution to your  
high cost / low volume machining problem today!***



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## CTR Precision Engineering Division

has been built up over many years of traditional manufacturing skills and expertise. Whilst originally serving the automotive sector, its acquisition of Rectory Tool Company Ltd combined with its planned growth and reinvestment programmes, CTR has steadily progressed emerging into other manufacturing sectors. Whilst probably more renowned for its reputation as a global player in manufacturing tooling and complete die sets to the world wide fastener industry, CTR with its technical skill engrained in its culture and work ethic, can compete equally as a specialised component piece part machinist giving a complete engineered solution.

### Experts in machining materials such as:

- Tungsten Carbide in grades G6 to G30.
- Sintered Steel Powder Metallurgy
- High Speed Steel - M2, M4, ASP Grades, S3
- Hot Work -H13
- Tool Steel - O1
- Aluminium
- Titanium
- Inconel

### Machine tool list includes the following:

- Turning - Multi Axis CNC Lathes- Doosan Lynx, Hitachi, Puma, Yang, Matchmaker
- Milling - 5 Axis DMG CNC Milling - XYZ, Bridgeport's
- Grinding – CNC Internal & External, Jagura,
- EDM - Wire and Spark Erodors - Agie Charmilles
- Honing – Delapena Speedhone

### QA & Inspection equipment includes:

- Taylor Hobson Talysurf Plus 2
- Profile Projectors – Baty, Mitutoyo,
- Hardness Testing
- Laser Marking - ElectroX

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## CTR FASTENER TOOLING MANUFACTURE DIVISION

**Since its founding in 1973, the CTR Carbide Dies name has been synonymous with manufacturing quality tooling and complete machine tool dies sets predominantly to the global fastener industry.**

Typical sectors include Automotive, Aerospace, Construction, Medical, Rail, Energy and Defence.

On the back of this reputation, we can offer proven tooling and die solutions to manufacturers in other specialist areas including spring manufacturing, the plastic injection moulding sectors, press tools, tube swaged end forming, ejector punches, segmented dies, Hot / Cold forming, extrusion, feed fingers and the rubber moulding industry. If the process requires an extrusion form tool or progression die set, CTR have the skill, experience and knowledge to provide a total engineered "one stop" solution.

CTR Fastener Tooling & Manufacturing Division specialise in low volume high value added engineering, providing its customer base with a single source supply option.

Continuous capital investment in state of the art technology includes for CNC Turning, Fully Simultaneous 5 Axis Milling, External & CNC Internal Grinding, Hard Metal Machining, EDM Wire and Spark Eroding Machining together with Diamond Hard Turning, all of which is complemented by a range of conventional general engineering workshop machine tools.

***With the advances in design, materials and cutting technology, CTR ensures it is a leading exponent at the forefront of research and development always seeking to improve its ability and capability to deliver in accord with our customers ever increasing and demanding standards.***

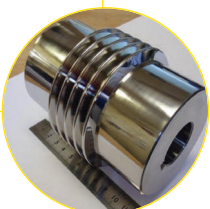
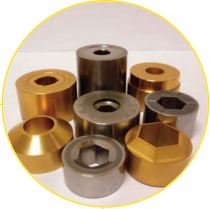


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**CTR Fastener Tooling Manufacturing Division** not only manufactures tooling, but also offers a unique Customer Support facility from rapid turnaround for modification/refurbished tooling to a comprehensive CAD / AUTOCAD die design consultancy service. Our team of skilled engineers work closely with the customer to ensure full tool and die optimisation. From enquiry through to order placement, the client's blue print design is constantly reviewed and evaluated to ensure it is engineered in the most cost effective way. Design recommendations are made for correct choice of materials, ease of manufacture and assembly therefore giving added value throughout the relationship. Working as partners with our customers has enabled subsequent process machining operations to be eliminated or reduced where the extruded part shades the final finished size, resulting in significant operational cost savings and increase piece part output.

#### Quality

- **We hold AS9100 Aerospace Standard Certification together with ISO 9001 for our Business Management Systems.**

#### Traceability

- **Full material and lot traceability is “the norm” with investment in the latest MRP software, enables immediate feedback of customer order traceability.**

#### Materials:

- **Tungsten Carbide in grades G6 to G30.**
- **Sintered Steel Powder metallurgy**
- **High Speed Steel – M2, M4, ASP Grades, S3**
- **Hot Work –H13**
- **Tool Steel – 01**

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**CTR HARD METAL MACHINING DIVISION**  
established as a result of advances in design,  
materials and technology synergies, together with  
the increasing customer demand for  
precision and quality.

These days, far more extreme and complex detail profiles, forms and shapes are being engineered into products. Much of this "micro fabrication technology" is achieved via Electro Discharge Machining (EDM) through either Wire or Spark Erosion.

EDM machining has been an essential CTR core process for many years and has helped CTR Carbide Dies to build and establish its enviable reputation as a global player in the supply of tooling and dies to the Fastener industry in sectors such as Automotive, Aerospace, Construction, Rail, Medical, Energy and Defence.

Continuous investment and expansion over the years has seen the Hard Metal Machining Division (HMMD) gradually develop where it is equipped with machines utilising the best technology available. The plant list includes a state of the art Agie Charmilles Classic V2 Wire Eroder and Agie Form 30 Die Sink equipment with 26 piece tool changer. Internal costs are kept to a minimum where all Electrodes are manufactured internally. All machines are capable of running 24/7 utilising Lights off Production (LOP) capability to its maximum ensuring customer delivery times are fully serviced.

Our hard turning CNC lathes are capable of machining steel up to 65 HRc with "as ground" surface finishes being achieved.

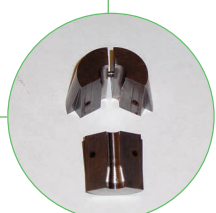
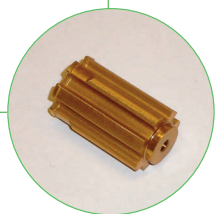
***CTR's commitment to quality is demonstrated as its Business Management System continues to hold Certification to the Aerospace Standard AS 9100 and also to ISO 9001.***



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## CTR's Hard Metal Machining Division

facility and dedicated skilled engineers are primed to meet your complex machining requirement, be it a prototype or production batch size. With 20 years of experience and know how we can assist in helping you meet the needs of your customer. There is no need to "turn down a job" where hard metal machining via EDM / Diamond turning is required. Whether it's a complex form, shape, profile, spline, tooth form, enclosed or through hole, by working in partnership with common aims in mind, our dedicated team is ready to supply an engineered solution at an attractive and competitive cost to the highest quality.

### WEDM

- Agie Charmille AC Progress VP2
- Agie Agiecut AC Classic VS
- Agie Agiecut AC Classic 2S

### Spark Erodors

- Agie Form 30 with 26 piece tool changer
- Agie Integral 2

Typical Workspace Capacity approx 250 x 300 x 350mm

### Hard Turning

- Doosan Lynx L300
- PUMA 240 CNC Lathe
- Hitachi Seki Hi Tec Turn CNC Lathe

### Quality Assurance

- Taylor Hobson Talysurf 2
- Profile Projectors with Fusion FT2 E Software
- Hardness Testing
- Laser Component Marking
- Digital Micro Bore measurement