



**SPECIALIST MATERIALS**



**LARGE COMPONENTS**



**COMPLEX COMPONENTS**



**PROTOTYPES**



**MACHINED CASTINGS**



**REVERSE ENGINEERING**



**ASTM WELDING**



**QUALITY CERTIFIED**

**SPECIALISTS IN CNC PRECISION MACHINING OF HIGH-PERFORMANCE  
& SUPERALLOYS TO 2.5M LENGTH, 0.8M DIAMETER AND 1.2M CUBED**

## ABOUT US

**C. S. Simmons Engineering Ltd** have been producing precision machined parts to the highest standards for over 45 years and have extensive experience CNC machining superalloys such as Inconel, Hastelloy, Monel, 17-4 PH, S316 Super Duplex, Zeron 100 and Waspalloy.\*

### CNC Machining Services

CS Simmons Engineering provide Large Component, Complex Component, Prototype Component, and Reverse Engineering CNC Precision Machining Services in both Regular and Super Alloys.

### Welding Services

CS Simmons Engineering also provides welding services compliant with various ASTM International Standards as well others, such as API 6A, and can provide welding test results such as Dye Penetrant Inspection Reports and Radiographic Inspection Reports if required.

### Quality

C. S. Simmons Engineering Ltd is a BS EN ISO 9001 : 2015 Quality Management Certified Firm, Certificate No. 9835, and are audited by NQA. Quality and performance are monitored closely with set procedures and with Tricorn Job Processing software that allows unparalleled traceability during the machining process and long after delivery.

### Investment

C. S. Simmons Engineering continually invests in the latest CNC precision machining technology available to always remain very competitive and to be able to meet very demanding delivery times without compromising quality.

C. S. Simmons Engineering Ltd are capable of machining any size of parts up to 2.5m in length or 1.2m cubed, in any material, including high-performance alloys.

For more information please contact Mark Simmons, Clive Simmons or Allen Moore on **+44 (0)1761 433944**. All will be very happy to help you with any request.



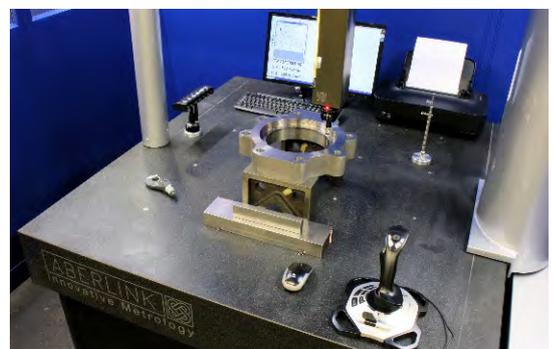
**PRECISION MACHINING TO 2.5M LENGTH**



**PRECISION MACHINING TO 1.2M CUBED**



**PRECISION MACHINING OF SUPERALLOYS**



**ABERLINK ZENITH TOO 1000 CNC CMM**

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# OUR MARKETS

## Industries Served

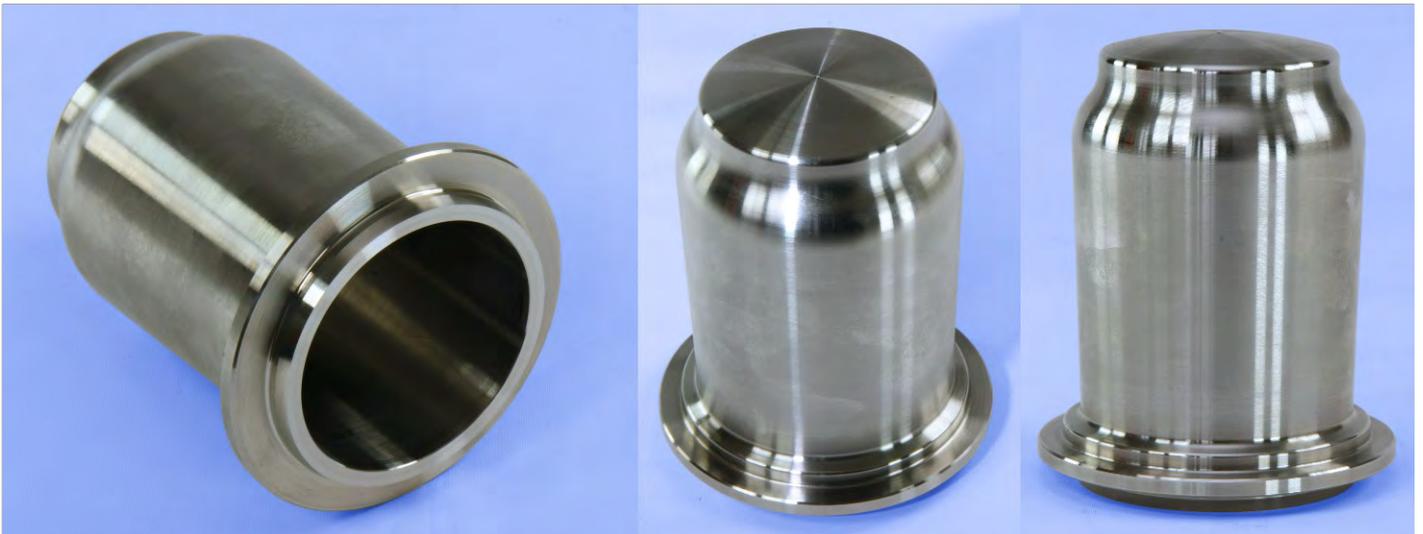
- Defence
- Hydraulic
- Mining
- Nuclear
- Petrochemical
- Rail
- SUB-SEA Oil & Gas

## Applications

- Specialist Materials
- Large Component Machining
- Complex Component Machining
- Prototype Machining
- Machined Castings
- Reverse Engineering
- University Science Departments



**GREY CAST IRON CNC MACHINED CASTING**



**INCONEL 625 CNC TURNED COMPONENT**



**LARGE REVERSE ENGINEERED  
CNC MACHINED CASTING**



**LARGE REVERSE ENGINEERED  
CNC MACHINED CASTING**

# OUR FACTORY

CS Simmons Engineering has a modern, well equipped factory in Radstock, in the heart of Somerset.



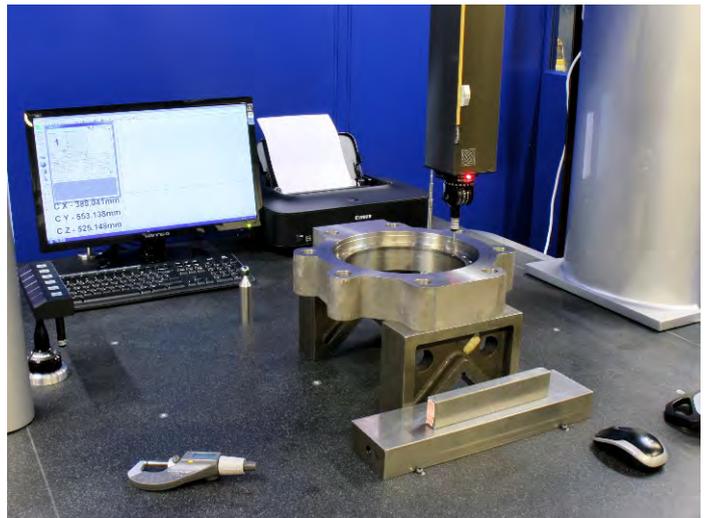
**HYUNDAI-WIA L500LMA CNC TURNING CENTRE  
CNC MACHINING TO 2.5M LENGTHS - NEW FOR 2019**



**CS SIMMONS ENGINEERING FACTORY  
FROM MILL ROAD**



**HARTFORD HMC 2082AG  
VERTICAL MACHINING CENTRE**



**ABERLINK ZENITH TOO 1000 CNC CMM**



**DOOSAN CNC MACHINING CENTRE HM 630**



**LARGE COMPONENT CNC MACHINING  
TO 1.2M CUBED**



# SPECIALIST MATERIALS CNC MACHINING SERVICES

C.S. Simmons Engineering prides itself on its ability to machine the more exotic materials such as Inconel, Hastelloy, Monel, 17-4 PH, S316 Super Duplex, Zeron 100 and Waspalloy.\*

In our factory all of these materials have been successfully machined, as well as many other specialist alloys, for oil, defence and many other industry applications.

## List of Common Super Alloys Names

**Hastelloy** - Also known as: ASTM B574 Din 17752, Hastelloy C276 / C22 and UNS N010276

**Inconel 718** - Also known as: AMS 5596, AMS 5662, ASTM B637 and UNS N07718 - A Very Versatile High Temperature and Corrosion Resistant Alloy.

**Inconel 625** - Also known as: Inconel Alloy 625, Chronin 625, Altemp 625, Haynes 625, Nickelvac 625 and Nicrofer 6020.

**Monel K500** - Also known as: ASTM B865 N05500, BS 3076:1989 NA18, DIN 2.4375, AMS 4676 and QQ-N-286.

**Monel K400** - Also known as: Alloy 400, UNS N04400, BS 3076 NA13 and ASTM B164 (VO2.04).

**Ni Hard** - White cast irons, alloyed with Nickel and Chromium, Ni Hard 1, Ni Hard 2, Ni Hard 4 and Ni Hard 5.

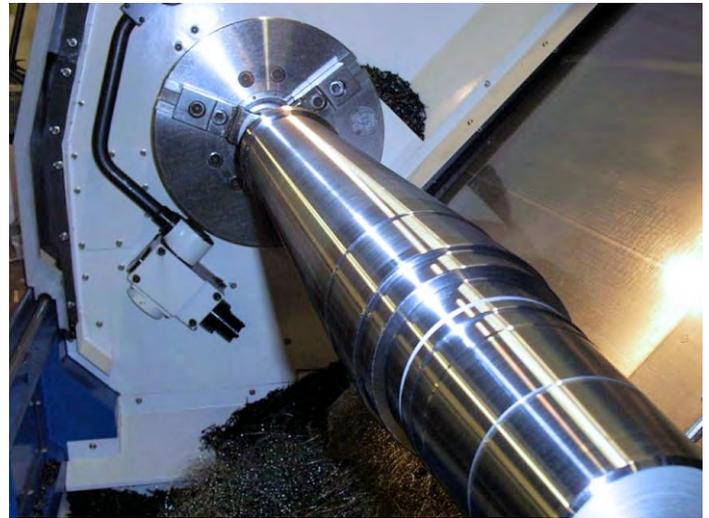
**Nimonic 80A** - Also known as: Nickel 80A, Nimonic 80A and UNS N07080 - An alloy very resistant to chemicals, physical damage, oxidation and exhibits high tensile strength and creep rupture properties.

**Super Duplex** - Available in the following grades: UNS S32760, Zeron 100, FG and FLT fastener grades.

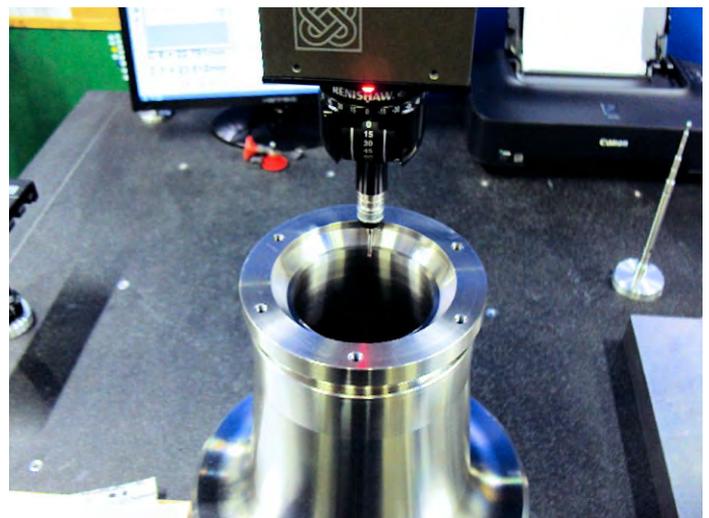
**Titanium** - Grades 2, 5 and BETA-C AMS6921A (Grade 19).



**NIMONIC 80A CNC MACHINED COMPONENT**



**UNS S32760 SUPER DUPLEX COMPONENT**



**SUPER DUPLEX COMPONENT BEING MEASURED**

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# LARGE COMPONENT CNC MACHINING SERVICES

CS Simmons Engineering specialises in CNC machining of large and often complex components in both regular and Super Alloys.

## MAXIMUM CAPACITIES

### Vertical Milling

X = 1800.0mm  
Y = 0920.0mm  
Z = 0700.0mm

### Horizontal Milling

X = 1000.0mm  
Y = 1000.0mm  
Z = 1000.0mm

### CNC Turning

Diameter = 800.0mm  
Swing = 1030.0mm  
Between Centres = 2500.0mm  
Hydraulic steady units, programmable

### CMM Inspection

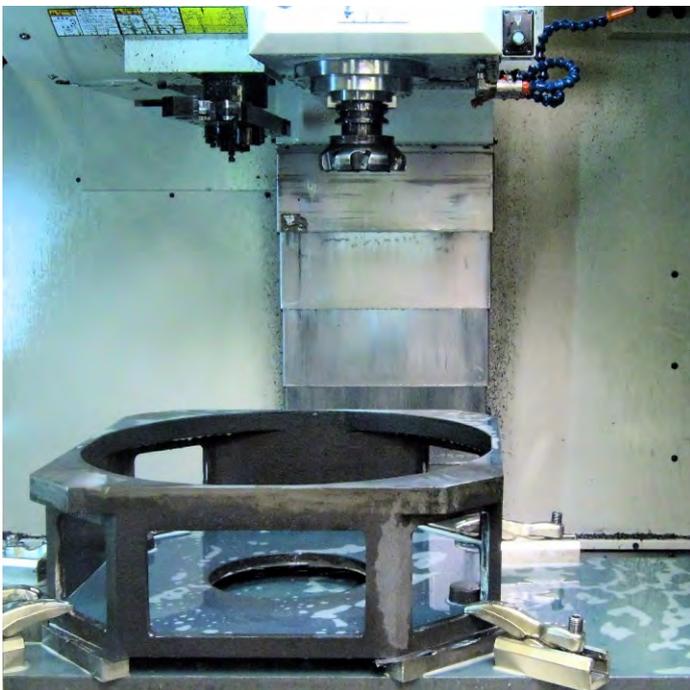
X = 1000.0mm  
Y = 1000.0mm  
Z = 0650.0mm



**EN19(709M40) 270MM DIA. X 1450MM SHAFT**



**AUTOBLOK FOR LARGE COMPONENT STEADYING**



**NGI GD 60-45-15 OIL PATCH CASTING FOR 600HP MOTOR**

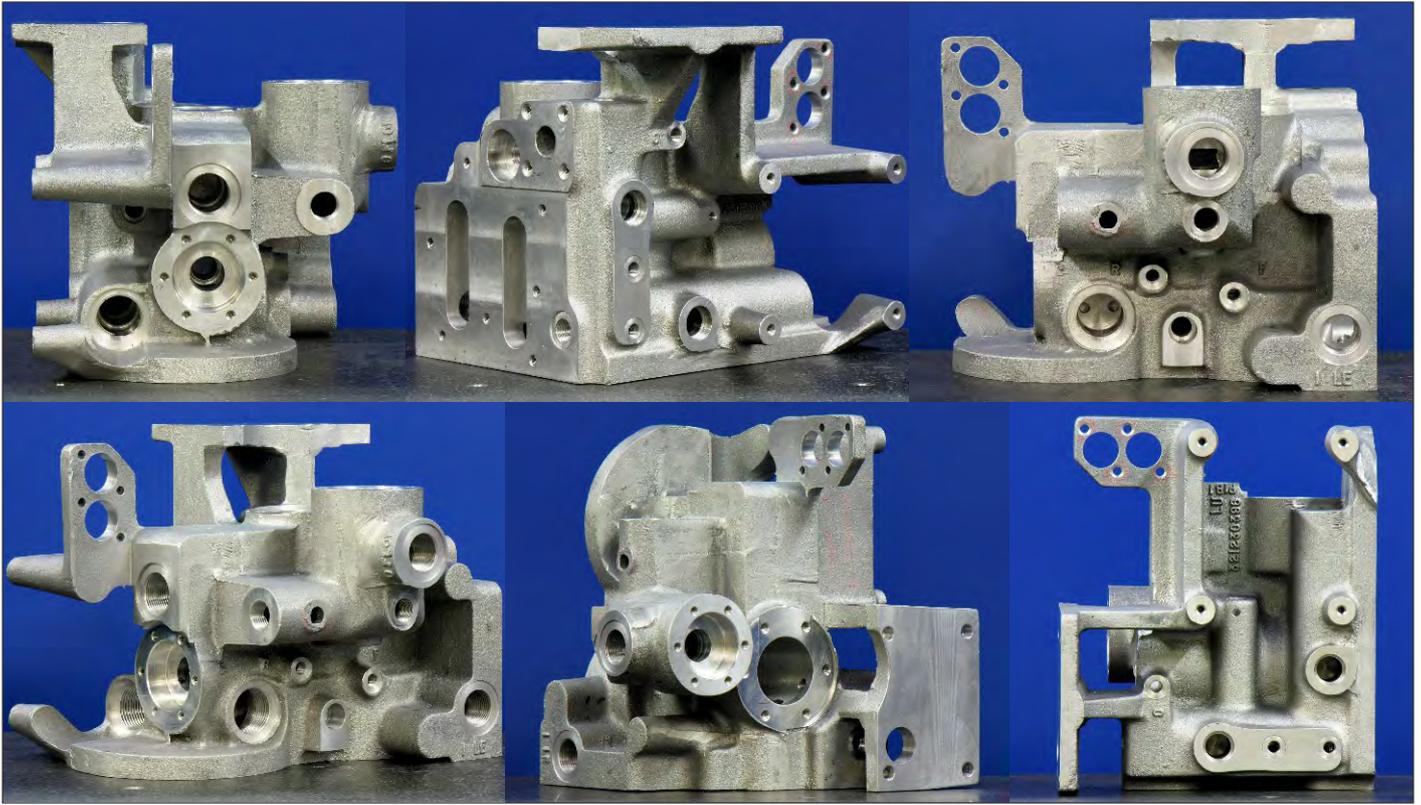


**C276 NICKEL ALLOY HASTALLOY CNC MACHINED SHAFTS**

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## COMPLEX COMPONENT CNC MACHINING SERVICES

CS Simmons Engineering specialises in CNC machining of complex and often large components in both regular and Super Alloys.



**ALUMINIUM CASTING WITH 6 COMPLEX CNC MACHINED FACES**



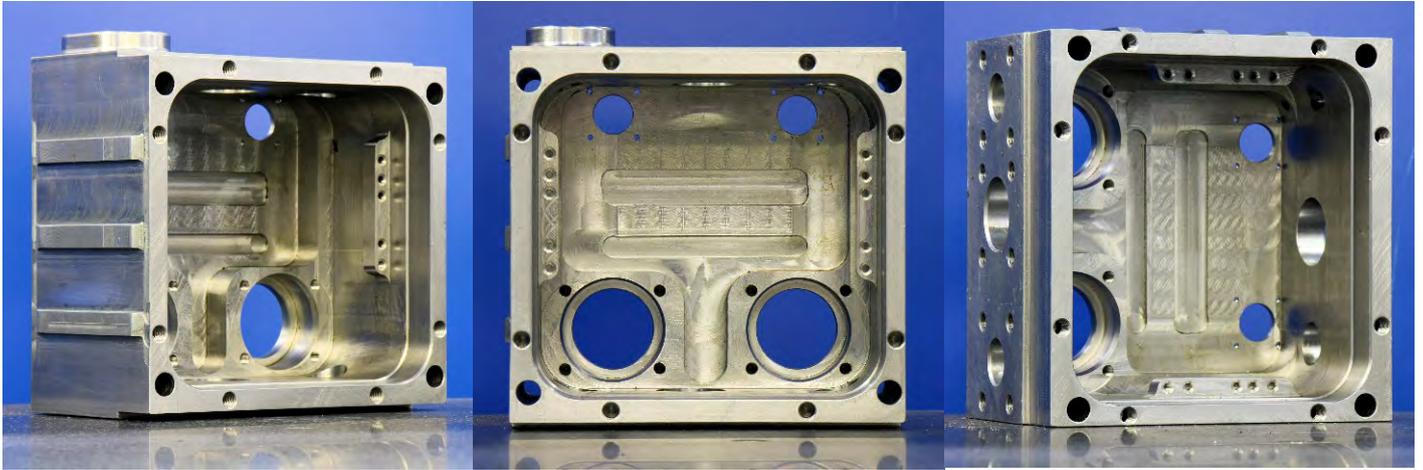
**COMPLEX HASTELLOY CNC MACHINED COMPONENT**

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# PROTOTYPE CNC MACHINING SERVICES

CS Simmons Engineering specialises in CNC machining of complex and often large prototype components in both regular and Super Alloys.

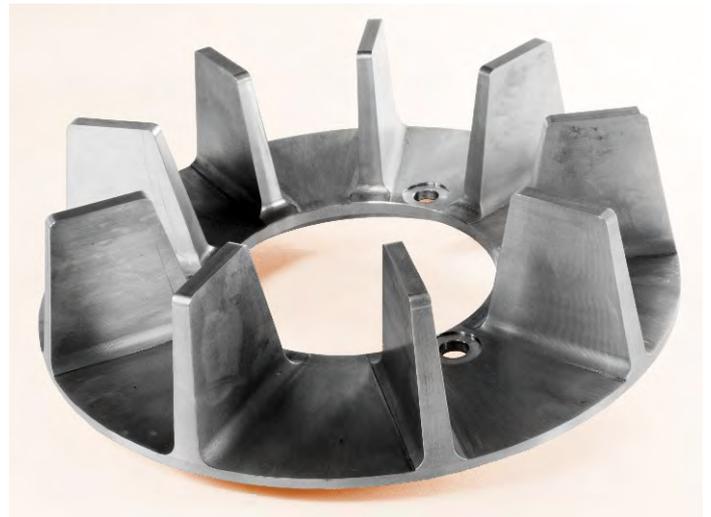
Batch sizes typically range from 1 to 100 and fast turnaround times are usually required. Same day competitive quotations can be given.



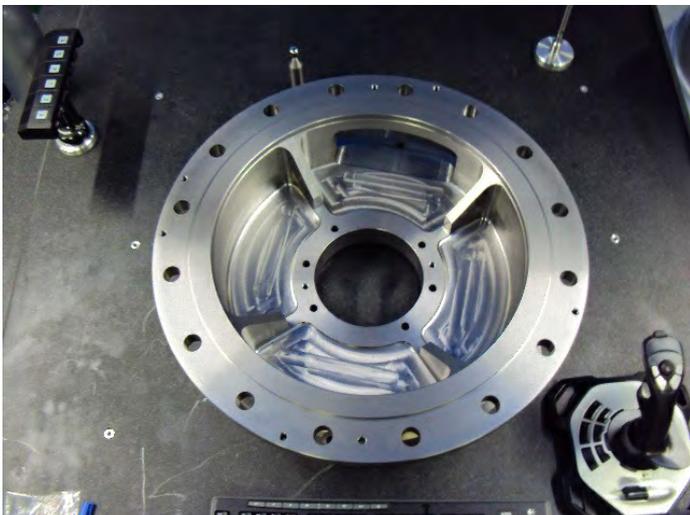
**PROTOTYPE UNS S31600 HOUSING MACHINED FROM SOLID BILLET**



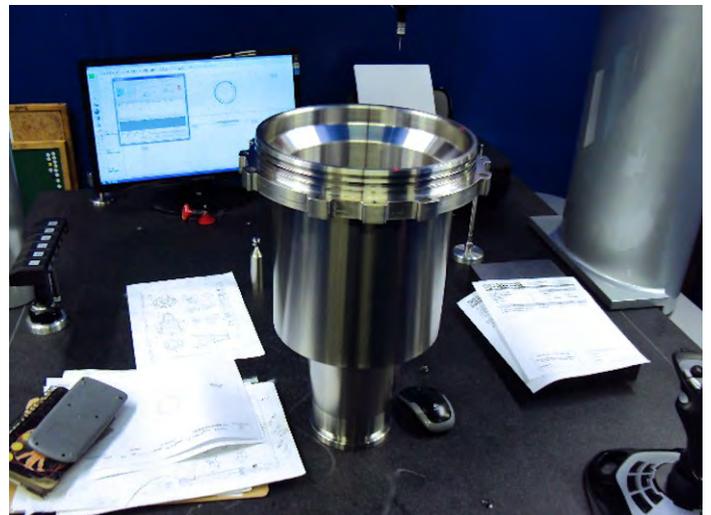
**TITANIUM GRADE 5 CNC MACHINED PROTOTYPE**



**CNC MACHINED PROTOTYPE COMPONENT**



**CNC MACHINED PROTOTYPE COMPONENT**



**CNC MACHINED PROTOTYPE COMPONENT**

## CNC MACHINED CASTINGS SERVICES

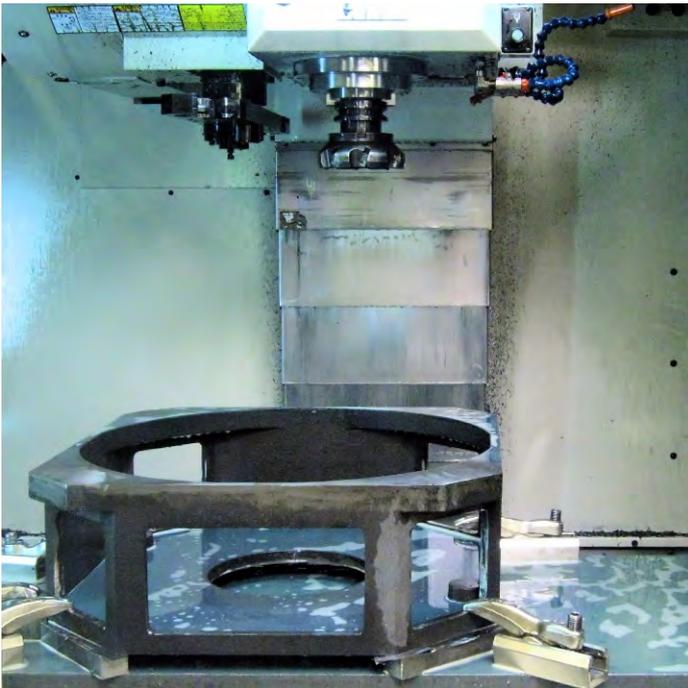
CS Simmons Engineering specialises in CNC machining of complex and often large castings in both regular and Super Alloys.



**LM25TF MACHINED FAN CASTING**



**NGI F.I. CNC MACHINED CASTING,  
580MM TURNED DIA.**



**NGI GD 60-45-15 OIL PATCH CASTING  
FOR 600HP MOTOR**



**LARGE CNC MACHINED CASTING**

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## REVERSE ENGINEERING CNC MACHINING SERVICES

CS Simmons Engineering is often asked to re-engineer an existing component that has broken or become so worn as to be no longer functional, and is no longer easily available.

Over decades, CS Simmons Engineering has developed particular expertise in re-manufacturing or adapting existing components, in both common and specialist steels.



**REVERSE ENGINEERED CNC MACHINED COMPONENT**

A local Civil Engineering Company have been using our services to good effect in the repair and refurbishment of Cranes.

The parts when removed are often beyond repair and the forgings and castings are no longer in

production, so these parts have to be machined from solid, and need to be right first time.

With the assistance of CAD-CAM and production software, plus shopfloor experience, newly manufactured replacement parts are created.



**CRANE REPAIR AND REFURBISHMENT**

# CAPACITY LIST

## MAXIMUM CAPACITIES

### Vertical Milling

X = 1800.0mm  
Y = 0920.0mm  
Z = 0700.0mm

### Horizontal Milling

X = 1000.0mm  
Y = 1000.0mm  
Z = 1000.0mm

### CNC Turning

Diameter = 800.0mm  
Swing = 1030.0mm  
Between Centres = 2500.0mm  
Hydraulic steady units, programmable

### CMM Inspection

X = 1000.0mm  
Y = 1000.0mm  
Z = 0650.0mm

## GENERAL DESCRIPTION OF SPECIALIST SERVICES

C.S. Simmons Engineering provide a CNC machining service to many industries, including oil, valve and defence. All types of machining are undertaken, including heavy stainless steel machining and machining of exotic materials such as Inconel, Hastelloy, Monel, 17-4 PH, S316 Super Duplex, Zeron 100 and Waspalloy.\* Manufacture and inspection meet the requirements of the updated BS EN ISO 9001 : 2015 certification (Certificate can be provided on request). Quality and performance are monitored closely with set procedures and with Tricorn Job Processing software that allows unparalleled traceability during the machining process and long after delivery.

C. S. Simmons Engineering continually invests in the latest CNC precision machining technology available, to always remain very competitive, and to be able to meet very demanding delivery times without compromising quality.

## MAIN SERVICES OFFERED

CS Simmons Engineering provide Large Component, Complex Component, Prototype Component, and Reverse Engineering CNC Precision Machining Services in both Regular and Super Alloys. Specific precision machining services include CNC Turning, CNC Machining, CAD/CAM Design and CNC CMM Inspection.

## QUALITY APPROVALS

C.S. Simmons Engineering is a BS EN ISO 9001 : 2015 Quality Management Certified Firm, Certificate No. 9835, and are audited by NQA.



Certificate No. 9835

## MACHINING CENTRE (CNC)

### CNC Hartford HCMC-2082AG

#### Vertical Machining Centre

Single Table Open Fronted Vertical Machining Centre, with hardened & ground box guideways for heavy cutting capabilities. FANUC 0iMD CNC Control System.

X-axis 1800mm  
Y-axis 920mm  
Z-axis 700mm  
Table 2000mm x 920mm  
Table Load 3000kg



## CNC CMM INSPECTION

### Aberlink Zenith Too 1000 CNC CMM

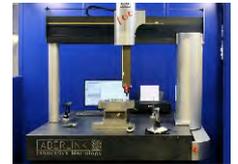
Various inspection reports are available with the Zenith Too 1000 CNC CMM.

Measurement Volume:

X-axis 1000mm  
Y-axis 1000mm  
Z-axis 600mm

Accuracy:

B89: 0.008/300mm  
VDI(U3): 0.0038 + L/250



## MACHINING CENTRE (CNC)

### CNC Doosan Heavy Duty HM 630

The HM 630 combines a high torque spindle drive and powerful axis drives for a large chip removal rate. The massive meehanite cast structure and wrap around box guideways provide the rigidity required for both heavy cutting and superb surface finishes. FANUC 18i-MB controls.

Max Diameter — 1000mm  
Height Z-axis — 1000mm  
Max Weight — 1200kg



## SAWING (VERTICAL BAND) THROAT — 350mm

## TURNING CENTRE (CNC)

**CNC Puma 12L** High response turning centre with FAPT conversational programming with Fanuc 15TA system. Fully programmable tailstock.

Length Z-axis — 1100mm  
Chuck Dia. — 400mm  
Max Chucking Diameter — 580mm



## TURNING CENTRE (CNC)

**CNC Puma 10HC Lathe** with Fanuc OT-C controls. Fully programmable tailstock.

Length Z-axis — 450mm  
Chuck Diameter — 250mm  
Max Chucking Diameter — 280mm



## CAPACITY LIST continued

### TURNING CENTRE (CNC)

#### Hyundai-Wia L500LMA CNC

**Turning Centre** equipped with Fanuc 18i control system and Steady Rest Type RX-5-Z 75-430 (*Workpiece: 430mm max. dia. – 30mm min. dia.*)  
Maximum Turning Diameter — 690mm  
Live Tools ER40 (*03-025mm Tool Fitting / 140 N Maximum Torque*)

Length Z-axis 2500mm (*maximum workpiece length, ideal for machining long shafts accurately*)  
Chuck diameter — 24"  
Maximum swing over bed — 1030mm



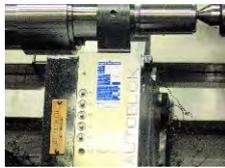
**NEW FOR 2019**

### TURNING CENTRE (CNC)

#### Daewoo Puma 400LA CNC

**Turning Centre** equipped with Fanuc 18i control system. Fully programmable tailstock. Fully retrofitted SMV Autoblock steady. (*Workpiece: 230mm max. dia. – 30mm min. dia.*)  
Maximum Turning Diameter — 580mm

Length Z-axis 2200mm (*maximum workpiece length, ideal for machining long shafts accurately*)  
Chuck diameter — 18"  
Maximum swing over bed — 800mm



### MACHINING CENTRE (CNC)

#### CNC Hartford Kappa VMC130

4 Axis, Fully programmable 4th 'B' axis. 'Hartrol' programming system with Fanuc 18i controls. Thermal heat dissipation. High pressure through coolant. Many macro functions to reduce programming set up times.

Length X-axis — 1500mm  
Width Y-axis — 700mm  
Height Z-axis — 800mm



### SPLINING



### MANUAL MACHINES

**Ormerod Slotter** — with 250mm stroke, cuts keyways along the length of a bore.

**Tarnow Centre Lathe** — New arrival bought specifically for machining 1 off items of large size. Solid Cast Bed construction, digital readout and positioning capabilities.

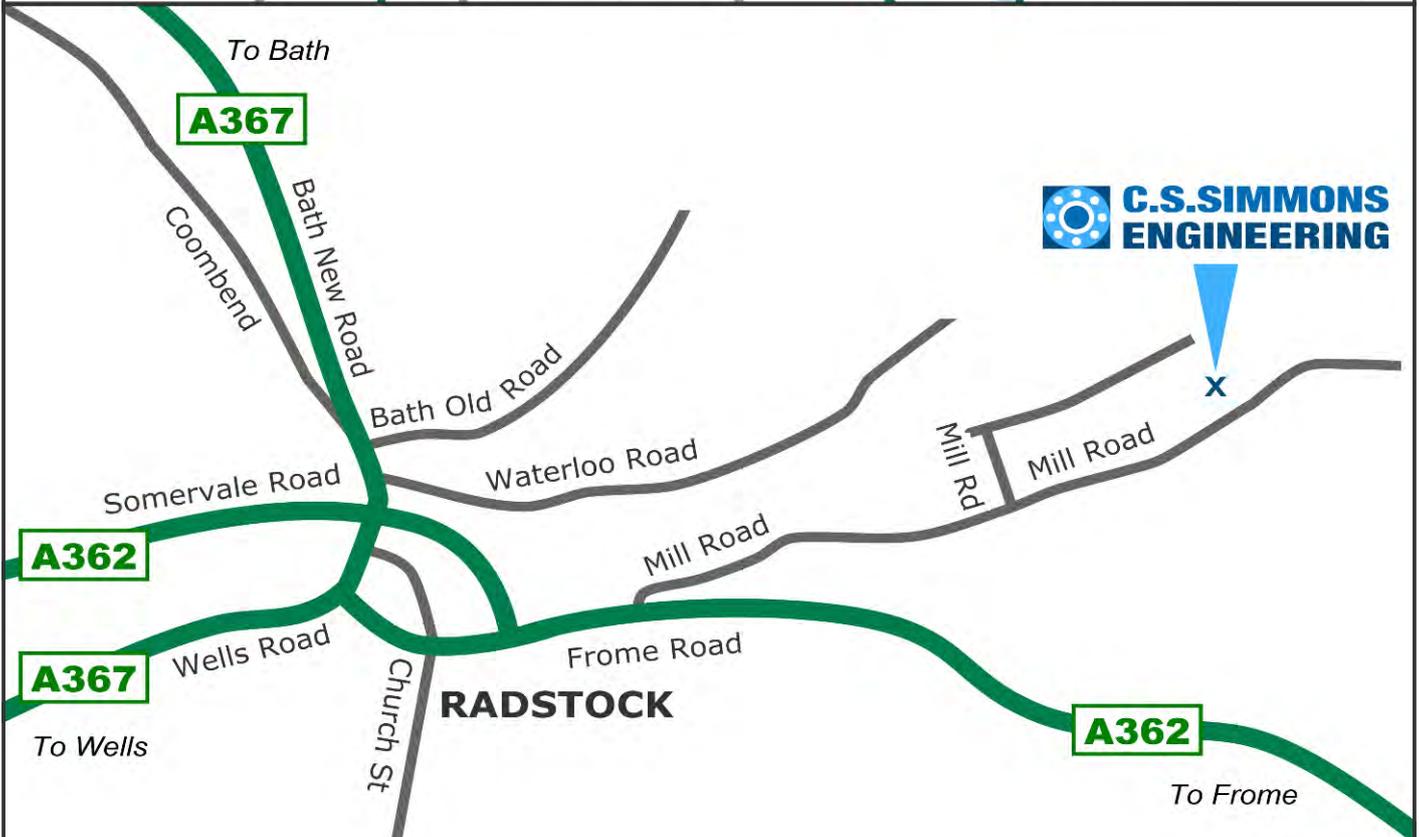
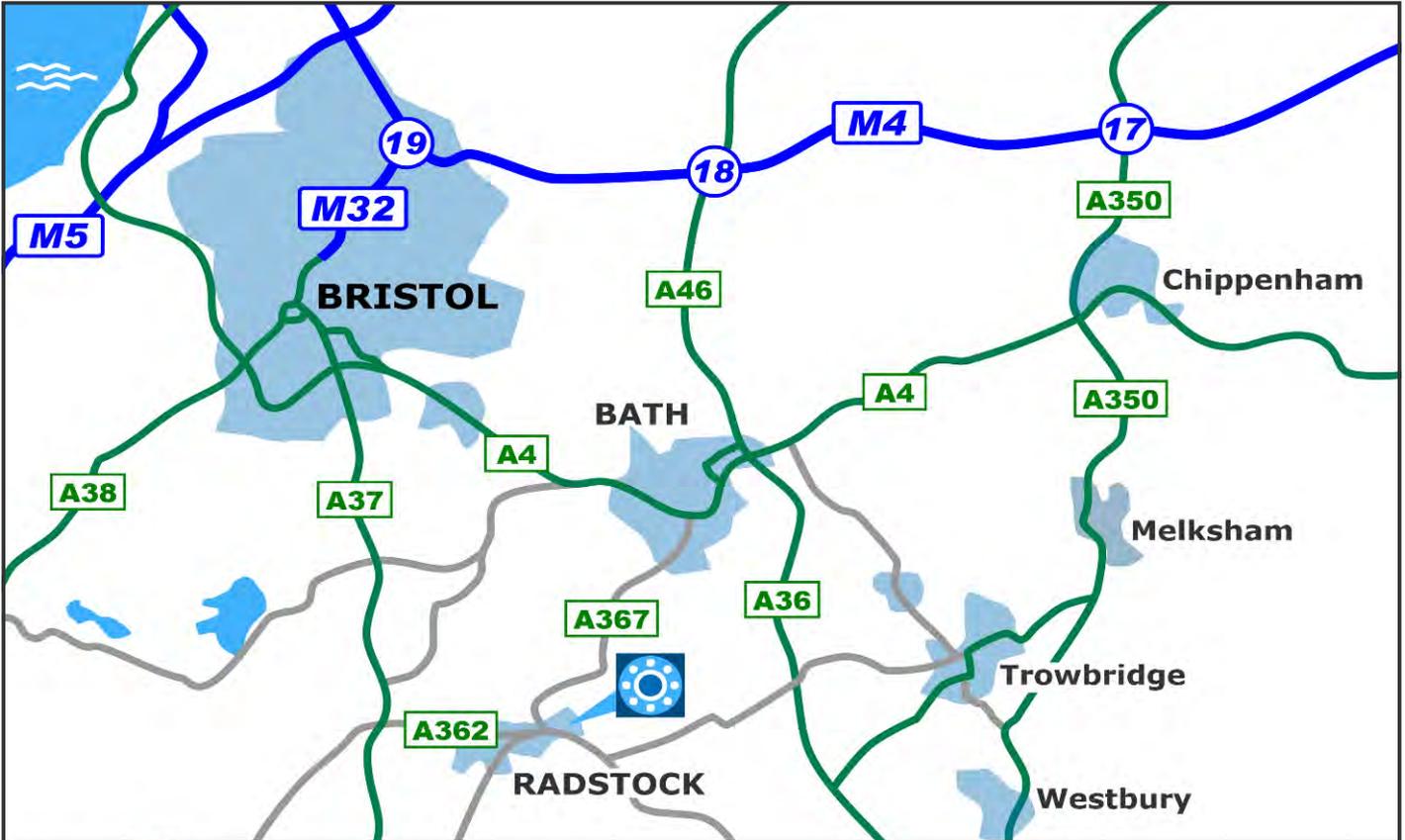
Length Z-axis — 2000mm  
Chuck diameter — 500mm  
Maximum chuck diameter — 750mm

**Gang Drills** — 2 sets for finishing operations, i.e., drilling, tapping, reaming & deburring.



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# HOW TO FIND US



**C.S. SIMMONS ENGINEERING LTD**  
MILL ROAD INDUSTRIAL TRADING ESTATE, RADSTOCK, BATH, SOMERSET, ENGLAND BA3 5TX  
TEL: 01761 433944 | EMAIL: SALES@CSSSIMMONS.CO.UK | WEB: WWW.CSSIMMONS.CO.UK



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C.S. SIMMONS ENGINEERING LTD, MILL ROAD INDUSTRIAL TRADING ESTATE, RADSTOCK, BATH, SOMERSET, ENGLAND BA3 5TX  
TEL: +44 (0)1761 433944 | FAX: +44 (0)1761 437901 | EMAIL: SALES@CSSSIMMONS.CO.UK | WEB: WWW.CSSSIMMONS.CO.UK