



MACHINING SPECIALISTS



**BERENDSEN**

MACHINING SERVICES



## ABOUT US

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Berendsen Machining Services, a division of Berendsen Fluid Power, has the expertise, equipment and experience to machine a range of components such as flanges, adaptors, drive shafts, bulkhead fittings, gear housings, clevises, manifolds, pins, rods and brackets. Our large range of machining services boasts quality products and rapid quotations and delivery turnarounds.

Our machining capabilities are a natural extension of our 20 years' experience in design, manufacturing and service. We have the in-house capabilities to produce a range of machined components to suit the needs of your business.

**Quality** Berendsen Machining Services operates at our ISO 9001 certified workshop in Newcastle, NSW, affording you the peace of mind knowing that any work carried out by us complies with the ISO's strictest quality assurance standards. We also have a full time quality department to ensure our already high standards are maintained and your expectations are always exceeded.

**Cost Effective Solutions** Our innovative machining procedures are highly efficient, providing you value for money. By utilising modern software such as Finite Element Analysis, our team reduce unnecessary material usage, ensuring a more cost effective result.

**Fast Turnaround** Our team comprises of over 50 staff working on a rotational roster six days a week to ensure your project is completed on time, every time.

**Design Services** We work closely with our customers throughout the entire design process to ensure that your experience is a smooth and efficient one. Our skilled, in-house Engineering and Design team work alongside our machinists to ensure our high design standards are maintained throughout the machining stages.

**Flexible** Our services are adaptable to suit specific customer requirements and meet the needs of any application. From small one-off jobs to large repeat orders, our team can customise a solution for you.

Our specific machining capabilities include:

- ✓ 5-Axis CNC multitasking
- ✓ CNC boring, drilling, milling and turning
- ✓ CNC CO2 & diode laser surfacing
- ✓ Cylinder honing (up to 650mm diameter x 8000mm stroke)
- ✓ Deep hole drilling (30-150mm diameter depth 7000mm maximum)
- ✓ Deep hole boring (30-150mm diameter depth 7000mm maximum)
- ✓ Manual drilling, turning and boring
- ✓ Welding and fabrication

We machine components from a variety of materials, including:

- ✓ Aluminium
- ✓ Bronze
- ✓ Duplex
- ✓ Stainless and mild steels
- ✓ Brass
- ✓ Copper
- ✓ Plastic

Berendsen Machining Services operates at our ISO 9001 certified workshop in Newcastle, NSW.





In-house design and manufacturing team combined with expert tradesmen allows for customised innovative solutions.



Advanced technology, machinery and tooling for high volume production runs.



Ability to cater for small one-off requirements to large orders of complex components.



State-of-the-art machinery for component accuracy, first time, every time.



Customised components for all industries including mining, construction, industrial, agricultural, marine, transport and automotive.



Ability to produce components from a variety of materials including aluminium, brass, bronze, copper, duplex, plastics and numerous steels.

Berendsen Machining Services operates at our ISO 9001 certified workshop in Newcastle, NSW, where we have a state-of-the-art workshop, a range of CNC machinery and over 50 full time qualified staff.

We fabricate a wide range of turned components, from SAE flanges to large adaptors, and have the flexibility to work with small one-off jobs, to large repeat orders.

## CNC MILLING

- CNC milling is a specific type of machining similar to both drilling and cutting.
- The milling process uses rotary cutters that enable our machinists to remove material from the workpiece by advancing in a direction at an angle with the axis of the tool.
- Milling machines are able to move in multiple axes to create precise shapes and sizes.
- We take pride in delivering quality CNC milled components, and as a result of our skilled team and superior machinery and software, we specialise in the design and manufacture of custom and standard manifolds.

### Our CNC Milling Machines and Capabilities

#### Okuma MA650 3-Axis Vertical Machine Centre

- ✓ 1800mm X axis travel
- ✓ 600mm Y axis travel
- ✓ 750mm Z axis travel
- ✓ 30 tool magazine capacity
- ✓ 1300mm x 660mm table size
- ✓ 50 to 6000rpm spindle speed
- ✓ 15/11kW spindle motor power
- ✓ 40m/min rapid traverse



#### Mazak V515 3-Axis Vertical Machine Centre

- ✓ 1000mm X axis travel
- ✓ 500mm Y axis travel
- ✓ 550mm Z axis travel
- ✓ 30 tool magazine capacity



#### Okuma MX55 3-Axis Vertical Machine Centre

- ✓ 1000mm X axis travel
- ✓ 500mm Y axis travel
- ✓ 550mm Z axis travel
- ✓ 24 tool magazine capacity



#### Moro Seiki NH4000 4-Axis Twin Pallet Horizontal Machine Centre

- ✓ 510mm X axis travel
- ✓ 510mm Y axis travel
- ✓ 650mm Z axis travel
- ✓ 120 tool magazine capacity
- ✓ 14000rpm maximum spindle speed
- ✓ 400mm x 400mm pallet size
- ✓ 0.001° minimum pallet indexing angle
- ✓ Maximum workpiece of 630mm diameter, 900mm high and 400kg
- ✓ High pressure coolant allows for maximum clearance of shavings





## CNC TURNING

- CNC turning is a cost effective, accurate method of machining parts.
- Turning is the process that enables us to produce cylindrical components from a variety of materials such as aluminium, brass, bronze, copper, duplex, plastics and numerous steels.
- Typically, a cutting tool describes a helical toolpath by moving linearly while the workpiece rotates.
- We use CNC lathes that enable the file to be digitally saved to the machine, therefore eliminating subsequent programming time and set-up costs.

### Our CNC Turning Machines and Capabilities

#### Okuma LB4000 4-Axis Lathe

- ✓ 670mm swing (max)
- ✓ 2200mm effective turning length
- ✓ Live tooling mounted on the turret allows for greater flexibility when undertaking complex workpieces
- ✓ Turret arrangement allows for the mounting of rotating tools in all 12 of the turret positions
- ✓ 2 to 4200rpm spindle speed
- ✓ 37/30kW main spindle
- ✓ 25m/min X axis rapid traverse
- ✓ 30m/min Z axis rapid traverse



#### Hyundai 3-Axis CNC Lathe

- ✓ 380mm swing (max)
- ✓ 1000mm effective turning length
- ✓ 3rd axis allows for completion of simple tasks without the need to add an extra operation, therefore reducing handling time eg. milling flats on a rod or drill pin spanner holes in pistons



#### Mori Seiki NL 2000 4-Axis Lathe

- ✓ 320mm swing (max)
- ✓ 510mm effective turning length
- ✓ 80mm diameter bar feed
- ✓ Live tooling reduces the need for several set ups, increasing productivity and decreasing the possibility of damage
- ✓ 260m/min X axis travel
- ✓ 590m/min Z axis travel
- ✓ Allows for machining of small parts



#### Mori Seiki 2-Axis CNC Lathe

- ✓ 600mm swing (max)
- ✓ 2050mm effective turning length



#### 2 x Mori Seiki 2-Axis CNC Lathes

- ✓ 420mm swing (max)
- ✓ 1000mm effective turning length





## MANUAL MACHINING

- We offer our customers manual machining capabilities which are particularly useful for one-off urgent requirements, basic production runs or where intricate fixtures are required.

### Our Manual Milling Machines and Capabilities

#### Universal Milling Machine

- ✓ 1000mm X axis travel
- ✓ 400mm Y axis travel
- ✓ 3 axis DRO
- ✓ 3HP 415V motor, dial variable speed system
- ✓ 70rpm to 3000rpm spindle speed
- ✓ Automatic quill feed 0.015, 0.04, 0.08mm/rev
- ✓ Swivel head rotates through 180 degrees to enable a varied range of milling and drilling



### Our Manual Boring Machines and Capabilities

#### Horizontal Borer

- ✓ 2000mm X axis travel
- ✓ 2000mm Y axis travel
- ✓ 2000mm Z axis travel
- ✓ 1500mm x 1500mm table area



### Our Manual Turning Machines and Capabilities

#### 6 x Manual Lathe Machines

- ✓ Ranging between 300mm to 1000mm swing
- ✓ 1000mm to 8000mm between centres



### Our Manual Drilling Machines and Capabilities

#### Deep Hole Drilling Machine

- ✓ 6mm to 32mm diameter
- ✓ 1200mm depth





## WELDING SPECIALISTS

In addition to our machinists, our in-house team comprises of qualified welding experts who are able to apply specialised procedures to machined parts and customise them for individual project requirements.

As a renowned manufacturer of quality fabricated products, it is essential we have consistent methodology in achieving sound welds.

Our dedicated welding workshop and in-house comprehensive weld policies ensures all machining tasks are carried out with precision and quality.

Our dedicated welding employees are qualified multi-skilled tradesmen and are required to obtain a Procedure Qualification Record and corresponding Macro Test Certificates to demonstrate their ability.

As welding is a hazardous procedure, our team considers safety paramount. We comply with Australian and NZ safety standards (AS3992 or AS1554) and ensure our weld workshops are fitted with the appropriate ventilation, warning signage and personal protective equipment. We also eliminate unnecessary exposure to ultra-violet radiation by isolating welding to its own confined workshop.



## FIRST ARTICLE INSPECTION REPORTS

We confidently provide First Article Inspection Reports (FAIR) to endorse the quality of our work.

While items reviewed as part of the FAIR are tailored depending on individual project requirements, possible inclusions are:

- Material quality certifications
- Test results (where applicable)
- Advisory and deviation statements
- Acceptance and test plan procedure (where applicable)
- All relevant drawings
- Certificates of conformance
- Inspection report



## FINITE ELEMENT ANALYSIS (FEA)

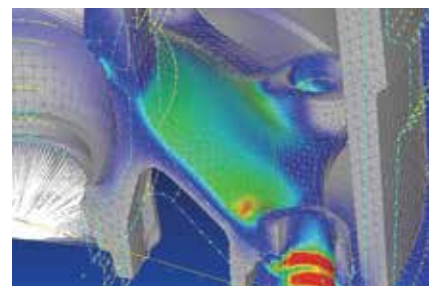
With a commitment to providing both quality components and superior service, our engineering and design team conduct in-depth analysis for all machining projects. Using the FEA software, our team is able to address customer needs on a whole new level by:

### 1. Verifying the design to ensure an adequate factor of safety has been built into the proposal.

In today's complex and safety orientated environment, it is often a requirement that all designs implemented are holistically understood. FEA software enables the design to be scrutinised under different loading conditions to illustrate the level of deflection and to identify areas of stress concentration. A comprehensive report can be provided as a formal record to show compliance of the design.

### 2. Reducing any unnecessary material usage, ensuring a more cost effective result.

As with all business areas, cost reduction is a key area of interest. The FEA software enables the identification of areas of deflection and stress concentration, so a complementary benefit is the ability to identify where material can be reduced without degrading the integrity of the design. This ability to reduce material usage translates directly into cost savings.



[www.berendsen.com.au](http://www.berendsen.com.au)

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