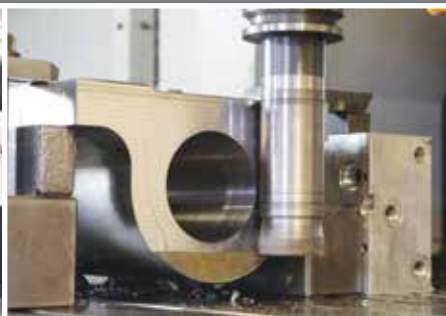




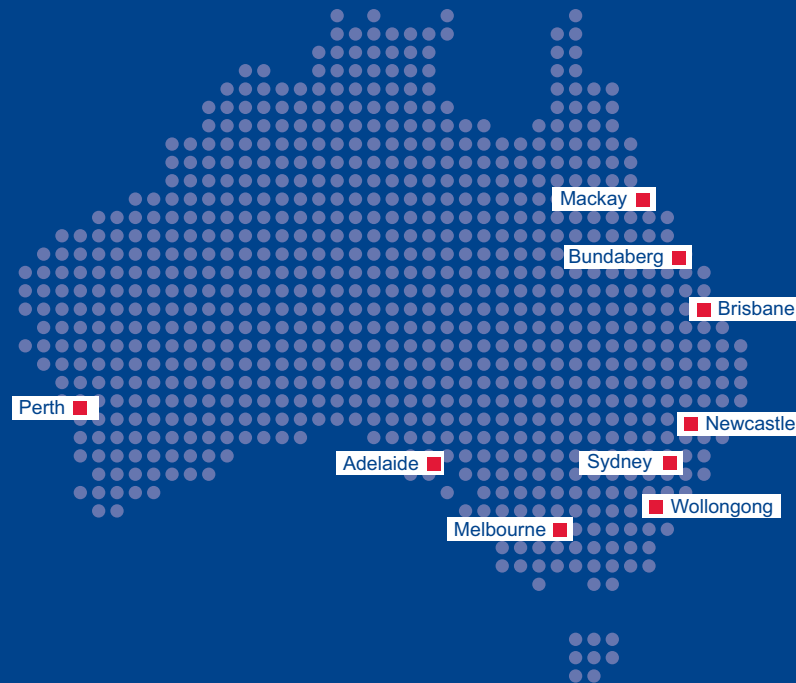
CYLINDER REPAIRS - A CLOSER LOOK

www.berendsen.com.au



20+ Years' Experience

For over 20 years, Berendsen Fluid Power has been at the forefront of Australia's fluid power industry, nation wide.





COMPANY SNAPSHOT

Berendsen Fluid Power is a locally-owned hydraulic services provider. We provide an end-to-end range of products and services suited to well established, multi-site organisations.

With nine fully equipped workshops across the country, Berendsen is one of Australia's largest specialist hydraulic service providers.

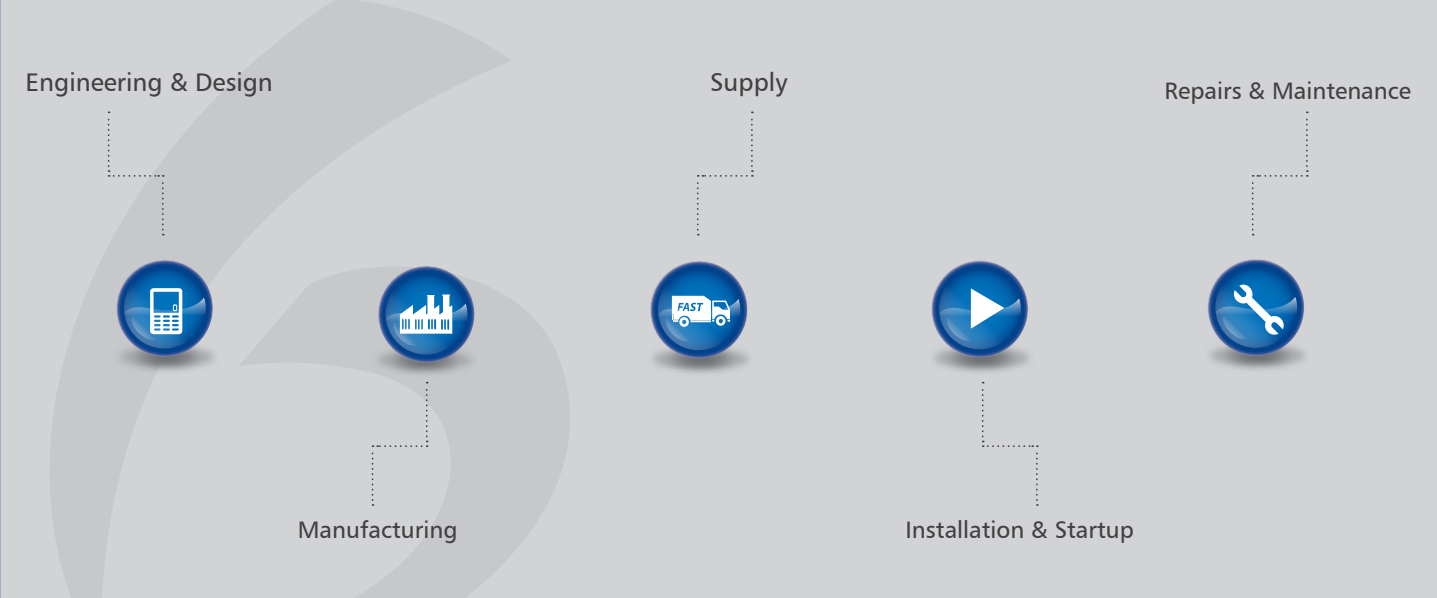
Our national footprint allows us to consistently provide high quality services, competitive prices and seamless communications for multi-site organisations.

Our safety systems underpin a high level of safety awareness by staff, organisational standards and training to drive positive outcomes.

Our technical know-how, comprehensive workshop facilities and quality control combine to provide superior life and performance, from turnkey systems to rebuilt cylinders and components.

Supported by our extensive workshop facilities, we maintain a fleet of field service vehicles manned by adaptable and highly skilled technicians who provide emergency response services in addition to planned maintenance services and technical support.

END-TO-END RANGE OF SERVICES



END-TO-END CYLINDER REPAIR PROCESS

Many hydraulic cylinders at work in Australia today endure a torturous life under extreme conditions. While it is possible to quickly return a cylinder to basic working order after a component failure, a superficial repair is usually temporary. Specialised equipment and an understanding of the complex forces, tolerances and materials involved is required to restore the original performance and reliability of the unit. Here is a look at the end-to-end process that makes Berendsen Fluid Power a leading cylinder repair facility trusted by Australian industry.



CYLINDER DISASSEMBLY

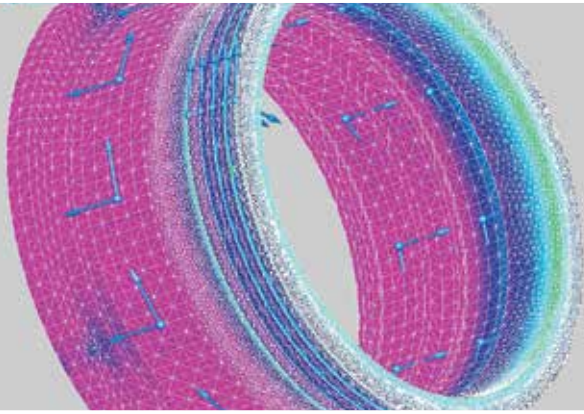
Our facilities feature heavy overhead cranes and special purpose disassembly equipment including hydraulic nut tensioning devices to handle very long, large bore cylinders. Our special purpose cylinder disassembly benches can accommodate cylinders up to 12,000mm length and 600mm bore and can develop up to 90,000Nm nut tensioning torque and 20 tonne pull apart force.

INSPECTION / EVALUATION

Cylinder condition is evaluated down to the micrometre through digital and manual measuring and testing equipment to assess tolerances, bore concentricity, rod straightness, crack detection, chrome hardness and thickness, and surface finish. Our extensive experience in cylinder failure diagnosis enables us to identify the underlying cause of wear or catastrophic failure.



END-TO-END CYLINDER REPAIR PROCESS

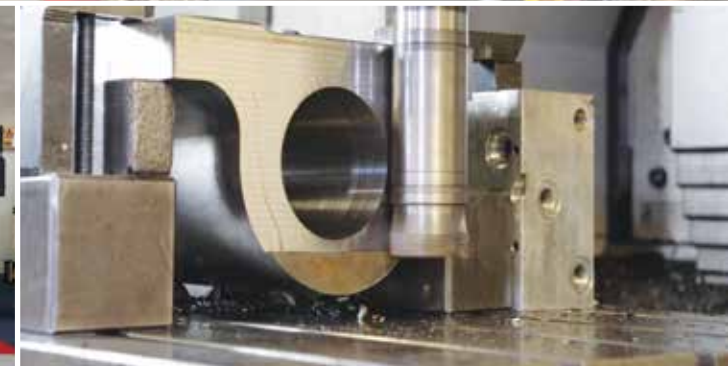


RELIABILITY ENGINEERING

Through sophisticated simulation software, our in-house engineering department is capable of analysing stress concentrations in cylinder components to determine whether the material and component design is optimal for the application. Berendsen's in-house engineers can then redesign components to significantly improve the reliability and longevity of cylinder components. New designs are tested and verified by computer simulation prior to manufacture, ensuring the long-term performance of every component.

REPLACEMENT PARTS AND SEALS

Where original spare parts are not readily available Berendsen employs high-speed CNC machines and other devices to rapidly manufacture cylinder components in-house at our ISO 9001 certified manufacturing facility. Our engineering department utilises CAD design to ensure all manufacturing details conform to specifications and we have an extensive library of component designs for a wide range of equipment types. In addition, our close working relationship with seal manufacturer Hallite gives us access to a complete range of high quality standard seals. Where required, Hallite will design and machine seals to our exact specifications immediately, from a wide range of materials.



END-TO-END CYLINDER REPAIR PROCESS

MACHINING AND RECONDITIONING

Our knowledge of OEM specs and cylinder tolerances gives us the ability to accurately assess those parts that may be reused or reconditioned, and those that must be re-manufactured. Berendsen has the equipment and expertise on site to perform machining operations to properly recondition cylinder components. Where possible, we may reclaim worn surfaces through welding processes utilising specialised jigs and rotators.

Berendsen's in-house machining and welding capabilities include:

- Turning up to 8,000mm length and 1,000mm diameter
- Honing up to 8,000mm length and 650mm diameter
- Milling up to 1,800mm x 600mm x 750mm
- Boring up to 3,000mm deep and 600mm diameter
- Deep hole drilling up to 3,000mm deep and 150mm diameter
- Submerged arc welding up to 1,000mm diameter
- Vertical feed rotator for bronze loading up to 1,000mm diameter
- Clevis bore reclamation up to 350mm deep x 450mm diameter



CHROME PLATING / SURFACE ENGINEERING

Depending on customer requirements, piston rods are reconditioned by applying a range of surface treatments to restore or improve the wear resistance and corrosion resistance of the rod. These include chrome plating, nickel plating, thermal spraying, laser cladding and heat treatments. Occasionally cylinder bores are also chrome plated for added corrosion and wear resistance.

Berendsen's in-house chrome plating capacities include:

- Preparation line comprised of caustic stripping baths and acid etching baths
- Chromic acid baths up to 3,800mm solution depth
- Cylindrical grinding and finishing up to 4,000mm length x 600mm diameter

END-TO-END CYLINDER REPAIR PROCESS



ASSEMBLY

Over two decades of industry specific experience in longwall mining, heavy mobile equipment, mineral processing and manufacturing applications combine with in-depth knowledge of precise cylinder assembly procedures, special purpose cylinder assembly benches and calibrated nut tensioning tools to ensure correct torque specifications are achieved.

TESTING

Our facilities are equipped to accurately test cylinders using a range of fluid mediums, including mineral oil, water glycol and solcenic fluid. Our testing facilities have the capacity to verify cylinder performance up to 600 bar static pressure. Berendsen is also capable of developing customer-specific testing procedures to verify cylinder performance under specified conditions, such as induced loads, using purpose-built cylinder test frames.



PAINING AND FINISHING

Cylinders are primed, painted, packaged and finished to customer requirements in our in-house paint shops.

OPEN CUT MINING



Heavy Mobile Equipment

Berendsen Fluid Power is particularly well known for having extensive industry experience in heavy-duty cylinder overhaul services for mobile mining equipment, including:

- Dump trucks - front and rear struts, hoist cylinders and steering cylinders
- Excavators - boom, stick, bucket, clam and track adjuster cylinders
- Bulldozers - blade lift, blade tilt and ripper cylinders
- Loaders - bucket lift cylinders

Mineral Processing

Berendsen Fluid Power is one of only a few Australian companies that can provide large scale cylinder overhaul services for mineral processing and materials handling, including:

- Crushers - tramp release cylinders
- Stacker reclaimers - luffing cylinders
- Car dumpers - wheel lock and gripper cylinders
- Filter press cylinders



Longwall Equipment

Berendsen Fluid Power supply and refurbish longwall mining equipment, including:

- Leg cylinders
- DA rams
- Base lift cylinders
- Flipper cylinders
- Side shield cylinders
- Coal clearance cylinders
- Ranging arm cylinders

Development Equipment

Berendsen Fluid Power supply and repair cylinders for development equipment, including:

- Continuous miners - sheer, TRS/conveyor/apron and roof bolting cylinders
- Shuttle cars - steering cylinders and floor jacks
- Underground loaders - bucket lift, tilt and steering cylinders
- Drill rigs - feed cylinders and tilt cylinders



Stationary Plant and Equipment

For more than two decades Berendsen has built a reputation in the Australian manufacturing sector for the expert repair and refurbishment of cylinders used in heavy-duty industrial applications, including furnaces, casters, rolling mills, rod mills, coilers, slitters, finishing mills, coke ovens, hydraulic presses, extrusion presses and many more applications.

Our experience extends to harsh environments where high-temperatures, corrosive fumes, dust, vibration, moisture and other factors in the manufacturing environment have an adverse effect on the working life of cylinders. Through hard-earned experience our repair techniques have evolved to improve the reliability of rebuilt cylinders, reducing downtime and saving money for our clients.

Our specialties include:

- Mill type cylinders
- NFPA tie-rod cylinders
- Heavy duty round-line cylinders
- Large bore cylinders
- Trunnion mount cylinders
- Slide-gate cylinders
- Furnace tilt cylinders
- Mud gun cylinders
- Stainless steel cylinders



Mobile Equipment

At Berendsen we understand that time is everything in the construction business and you can expect us to handle each and every repair with the utmost urgency.

We have experience in the repair of cylinders for mobile equipment used in construction projects, including:

- Medium-sized excavators - boom, bucket and stick cylinders
- Articulated dump trucks - tub-hoist and steering cylinders
- Tipper-trucks - multi-stage hoist cylinders
- Wheel loaders - bucket and steering cylinders
- Graders - blade shift, steering and articulation cylinders
- Dozers - blade lift, blade tilt and ripper cylinders

Scrap Metal Processing Equipment

In the recycling business uptime is everything and for over two decades Berendsen has overhauled the long, large-bore cylinders used in critical applications such as baling presses and metal shears.

Berendsen's facilities are equipped with the overhead cranes, cylinder stripping benches and machine tools necessary to recondition the long, large bore cylinders found in recycling equipment. Additionally our team possess the application-specific know-how that is essential to achieve an effective, long-term repair.

WE PROVIDE QUALITY HYDRAULIC SERVICE AND REPAIR AUSTRALIA WIDE

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Brisbane

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20 Bernoulli St, Richlands, QLD 4077

Bundaberg

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8 Kay McDuff Drive, Bundaberg, QLD 4670

Mackay

07 4999 5400

229 Boundary Rd, Mackay, QLD 4740

Melbourne

03 9760 5000

7 London Dr, Bayswater, VIC 3153

Newcastle

02 4915 1800

10-18 Carbine Cl, Wallsend, NSW 2287

Perth

08 9353 1066

2/33 Colquhoun Rd, Perth Airport, WA 6105

Sydney

02 9765 8888

1-4 Denoci Cl, Wetherill Park, NSW 2164

Wollongong

02 4298 4000

6-8 Brady St, Berkeley, NSW 2506



We have been at the forefront of Australia's hydraulic industry for over 20 years, offering a comprehensive range of fluid power service and repair facilities, products and system solutions, as well as our own range of manufactured products.

Competitively Priced Products

Berendsen is a leading distributor of premium brand hydraulic products.

Quality Service & Repair

Berendsen is a leading provider of first class hydraulic service & repair.

Custom Cylinders & Manifolds

Berendsen is a leading manufacturer of hydraulic cylinders & manifolds.

Custom Hydraulic Design

Berendsen is a leader in hydraulic system design and industry expertise.

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