



MAKING MACHINERY MOVE

Corporate Brochure



CRAM is an engineering solutions provider that focuses on products and services for the mining, manufacturing and construction industries.

CRAM operates in highly specialised fields of fluid power, electro-hydraulic engineering & design, undercarriages and specialised maintenance and engineering services.

CRAM also acts as a full service provider to facilitate maintenance, refurbishment, repairs and overhauls throughout the entire life cycle of industry equipment and machinery.

Our team is compelled to keep machinery moving reliably into the future, fuelled by innovation, dedication and passion for individualised engineering solutions that are driven by customer needs in an ever-changing market.

MISSION

To provide superior engineering solutions and products that customers recommend, employees are proud of and competitors admire. We do this by creating long lasting relationships, empowering our employees and never failing to complete the job safely, on time, to budget and exceeding expectations.

LOCATIONS

CRAM has service centres in NSW, Queensland, Western Australia and Tasmania and can look after projects ranging from complex mechatronic systems down to simple hydraulic cylinders and valve components.



ACCREDITATIONS

CRAM's management systems are certified to ISO 9001 Quality Management Systems, AS/NZS 4801 Occupational Health and Safety Management Systems and accreditation to AS/NZS ISO/IEC 17020 general criteria for the operation of various types of bodies performing inspections.

The aim is to provide a comprehensive set of concepts and tools for the leadership and operation of a continuously improving organisation with a major focus on customer needs and the expectations of all stakeholders.

- Certification to ISO 9001 & AS/NZS 4801
- Accreditation to ISO/IEC 17020
- Compliance to ISO 14001 Environmental Management
- Zero Harm to the environment



Motion Asia Pacific



CRAM forms part of Motion Asia Pacific's business portfolio that contains some of Australia's most trusted and celebrated industrial brands.

Our collective industry knowledge and expertise span over 180 locations, 1800 employees across Australia, New Zealand and South East Asia.

Our purpose is keeping our customer's plant and equipment operating in an efficient and sustainable way.

Acquired by Genuine Parts Company in July 2019, Motion Asia Pacific unites with Motion Industries US as part of the Industrial Parts Group.

AUSTRALIA



NEW ZEALAND



INDONESIA & SINGAPORE



Our satisfied customers

Over the last 25 years, CRAM have serviced hundreds of customers in various capacities across a wide range of industries.

- Mining
- Industrial
- Manufacturing
- Agriculture
- Energy
- Minerals
- Transport
- Construction
- Waste Management
- Materials
- Production
- Infrastructure



Our Suppliers

CRAM has business partnerships with an extensive range of world class suppliers and quality products.

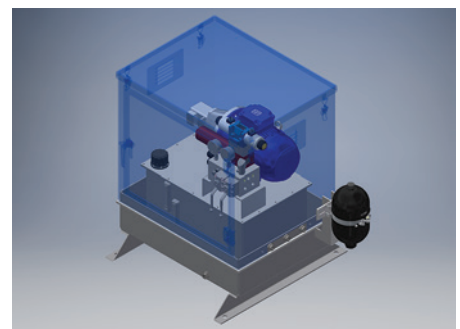
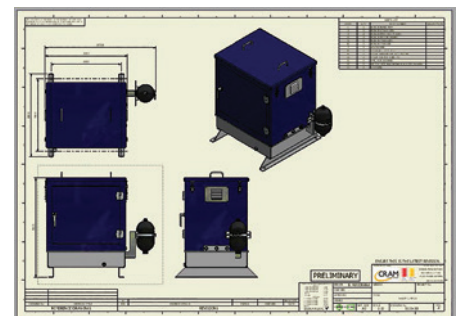
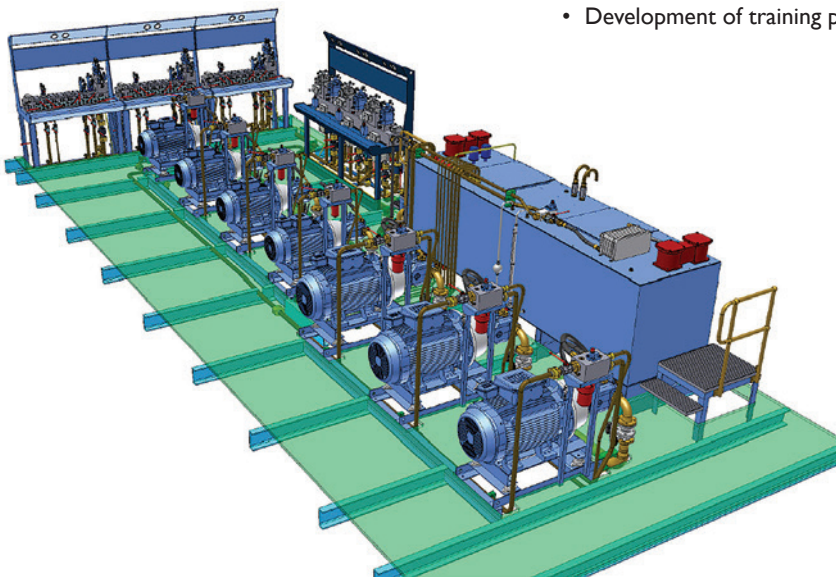
MOTORS					
DRIVES AND ACTUATORS					
PUMPS					
FILTERS AND ACCUMULATORS					
TESTING AND GAUGES					
VALVES					
CONTROLS					
SWITCHES AND SENSORS					
HOSES, FLANGES AND FITTINGS					
CYLINDERS					
JACKS AND RAMS					
CONDITION MONITORING					
RIGGING					
FASTENERS					
SEALS AND O-RINGS					
OIL					
LUBRICANTS					
CONSUMABLES AND ADHESIVES					

Fluid Power

CRAM has a dedicated projects team to design, manufacture, manage and commission a large range of mechanical and hydraulic solutions.

Our qualified and experienced mechanical and fluid power engineers are able to design and manage any type of OEM fluid power product. We deliver complete range of engineering services, as well as specialized assistance in a range of areas including:

- Engineering design of mechanical and fluid power systems including development of hydraulic schematics.
- Comprehensive fluid power systems analysis including troubleshooting of fluid power systems and investigation of mechanical failure.
- 2D and 3D Drafting services including Finite Element Analysis.
- Design and programming of HMI and PLC integrated fluid power systems.
- Project management including on-site installation and commissioning.
- Reverse-engineering of obsolete mechanical items for best performance.
- Australian Standards and Mining Design Guideline audits.
- Development of training packages and training courses.



Fluid Power

CRAM specialises in a wide range of hydraulic, pneumatic and lubrication products and services.

In addition to our modern repair facility, we provide turnkey operation and project management with strong manufacturing and design capabilities.

For example many lubrication systems for maintenance bays for both washing, lubrication and refuelling of mining machinery.

We have the capability of designing complete LinkOne parts manuals for all of your mining machinery requirements.

HYDRAULIC REPAIRS

Our repair capability covers a wide range of cylinder types including tie rod, welded-construction, screwed and welded, double acting, single acting, displacement and multi-stage telescopic.

CRAM also operate a fleet of service vehicles to support on-site repairs and service at customer sites, from hose and fittings repairs to major overhauls.

PIPE FABRICATION

Pipe Fabrication is the process of welding piping components such as pipes, elbows, tees, flanges, etc.

CRAM provides hydraulic pipework fabrication and installation services in accordance with AS4458-1997 Pressure equipment – Manufacture and AS4041-2006 Pressure Piping.

We have the engineering experience, qualified and experienced trades personnel and equipment necessary to cover all aspects of installing and commissioning appropriate hydraulic pipework for any project.

CRAM uses a EO2 form equipment to eliminate leakage in all fluid systems, by using elastomeric sealing systems.

Capabilities:

- Initial Design and Pipe sizing.
- Intricate pipe bending and pipe runs.
- Complete understanding of hydraulic pipework.
- Utilisation of butt welded, flared, swaged, EO2 form or cutting-ring style pipework.
- Site management and supervision.
- Qualified trades personnel including certified TIG welding technicians (AS1796 No 7).
- Inspection, testing and documentations (MDR & ITP's).
- Oil analysis and reporting.

HOSE MANUFACTURE

In partnership with Parker Hannifin, within the mining sector, together offer a complete solution for supply installation and project management of total hose refurbishment and re-hose of longwall supports, AFC, BSL, crusher main gate and tailgate.

CRAM can provide hoses fully compliant with MDG41 requirements and record all MDG41 hoses on a database which provides full auditability.

LUBRICATION

CRAM is a major supplier of lubrication products throughout Australia and as such has access to an extensive range of world class lubrication products.

PARKER GLOBAL

Specialists in fluid transfer, CRAM proudly manufacture hosing using superior quality hoses and fittings. We manufacture and supply quality valving, pumps, motors and hydraulic components for most OEM equipment.

WOLLONGONG MOBILE SERVICE

Operating out of Wollongong CRAM deliver the ENZED professional hose servicing and repair services offer a 24/7 hose replacement service.





PIPEWORK FLUSHING AND INSTALLATION

CRAM has many years' experience of site flushing and pressure testing hydraulic pipework. We have several flushing rigs that we can hire out.

Capabilities:

- Initial Design and Pipe sizing
- Intricate pipe bending and pipe runs
- Complete understanding of AS4042 for hydraulic pipework
- Site management and supervision
- Qualified trades personnel including certified TIG welding technicians
- Flushing and Pressure Testing up to 700l/min and 600Bar
- Inspection, testing and documentation
- Oil analysis and reporting

Hydraulic Accumulator

WHAT IS A HYDRAULIC ACCUMULATOR?

A hydraulic accumulator is a pressure storage reservoir in which a non-compressible hydraulic fluid is held under pressure that is applied by an external source of mechanical energy. The external source can be an engine, a spring, a raised weight, or a compressed gas.

An accumulator enables a hydraulic system to cope with extremes of demand using a less powerful pump, to respond more quickly to a temporary demand, and to smooth out pulsations. It is a type of energy storage device.

CRAM supply and provide service for Hydraulic Accumulators. The main objective of the Accumulator Maintenance is to provide a consistent and structured approach:

- To outline the entire maintenance process of accumulators to ensure that the customer, quality and safety standard requirements are met.
- To prevent injury to persons.
- To prevent catastrophic failure of hydraulic components in the system through routine systematic examination and testing.



COMMON TYPES OF ACCUMULATORS

- Bladder
- Diaphragm
- Piston
- Metal Bellow



Hydraulic Cylinders

CRAM specialise in understanding the requirements and constraints of our customers, their assets and production necessities, and we work together to deliver safe and quality outcomes.

We can facilitate the design, manufacture, supply and installation of all types of hydraulic cylinders:

- Single Acting
- Double Acting
- Bi-Directional Telescopic
- Single Acting Multi-Stage
- Double Acting Multi-Stage
- Hydraulic Jacks
- Hydraulic Rams
- Tie Rod

Repair or replace any cylinder's components including:

- Seals
- O-rings
- Bushes
- Bearings
- Rods
- Pistons
- Glands
- Barrels

At our facilities we perform several restoration processes to bring cylinders back to life:

- Honing
- Boring
- Re-chroming
- Concentricity
- Sealing
- Pressure testing
- Bypass testing

REPAIR PROCESS

With many years of experience in cylinders and repair have permitted us to create an advanced cylinder repair process. We are capable to go on site and remove the cylinder from the equipment and bring to our workshop to start the repair process.

Pre-Strip inspection

A visual inspection is made to identify any missing or damaged parts and nominate causes relating to failure. A pre-functional test can be done by checking the pressure, speed, and stroke dimension.

Strip Cylinder

Our workshop contains overhead cranes and special tools to disassemble the cylinders including hydraulic nut tensioning devices to accommodate very long, large cylinders. During this step the cylinder is cleaned, strip parts and remove seals to get inspected.

Inspection and Quote

Typically, a cylinder will be removed for repair due to either external or internal leakage. Close inspection of the cylinder parts, particularly the seals, after disassembly can reveal problems that may not otherwise be obvious.

Repair and Replace Cylinder components

Repair operations use specialised machinery operated by CRAM competent persons or by approved suppliers and will ensure all welding to be in accordance with AS1210 Class 2A. The concentricity of the barrel bore to the "O" ring recess shall be checked after final honing and 100% NDT tested.

Re-assemble cylinders components & Test

All parts are thoroughly clean in a petroleum-based solvent and blow-dry using compressed air. Coat with clean hydraulic fluid during assembly. Prior to installing seals, we ensure that the seal grooves are clean and free from nicks and burrs. Our test benches have the capacity to verify cylinder performance up to 350bar static pressure.

Paint and Storage

Cylinders can be painted in-house as per nominated specifications. For optimum storage life, hydraulic cylinders are kept in an environment that is protected from excessive moisture and temperature extremes. A hot, dry desert climate with cold nights, for example, must be accommodated when choosing the storage area.



Mining and Construction Services

UNDERCARRIAGE COMPONENTS, SERVICE AND REPAIR

CRAM stock an extensive range of undercarriage components to suit the leading makes and models of blast hole drill rigs operating in Australia and around the world.

CRAM's global supply chain network gives them access to leading manufacturers and brands of components. CRAM stocks these components in their major service centres in Mackay, Rutherford and Perth which reduces transit times to sites in remote mining regions. This offers additional coverage for unscheduled failures ensuring maximum machine utilisation.

CRAM's trained technicians are experienced in conducting full track frame rebuilds. These rebuilds include crack testing, weld repairs, line boring and full or partial component change outs.

CRAM stocks a range of new bare side frames for blast hole drill rig applications. These can be supplied as a replacement option or for new machine builds. These track frames can be purchased outright or on a service exchange basis.

CRAM's in-house engineers can modify existing track frames or design and develop side frames for any application.



O&K FINAL DRIVES

CRAM is the proud Australian distributor of O&K final drives manufactured in Germany. CRAM stock an extensive range of new final drives and genuine repair components to suit smaller tracked machines up to the extra-large final drives to suit the Caterpillar / Terex / Bucyrus mining class excavators and shovels.

CRAM is the only company in the southern hemisphere who can offer factory warranty on all rebuilds using factory certified technicians. Rebuilt final drives and service exchange final drive options are available.





DRILL REBUILDS

CRAM specialise in rotary blasthole drilling rig refurbishments including product upgrades, component redesign for life longevity, ease of maintenance and minimised total operating costs. With in-house engineering and certification, all product is designed and modified fit for purpose.

COMPRESSORS

CRAM are specialists at refurbishing and rebuilding rotary screw air ends. CRAM's trained technicians can rebuild the leading brands including Sullair, Sullivan Palatek, Kaeser, Atlas Copco and Ingersoll Rand.

In addition, CRAM also carry out air end performance testing of units in the field. The test is carried out to BS 1571-2:1975. The results of the test can assist in tuning the machine for optimum efficiency and has the ability to identify a unit which is not at specification allowing for a planned rebuild prior to an expensive catastrophic failure.

CTS TRACK INSPECTIONS

Costs associated with undercarriage repairs and maintenance can represent up to 50% of the total maintenance costs associated with operating a tracked machine. CRAM uses the latest ultrasonic technology to measure the wear rates of undercarriage components. A comprehensive condition report is provided detailing defects and wear patterns and provides recommendations to assist in achieving the lowest cost per hour of operation.

COMPONENT MANUFACTURE

With years of experience in the mining field CRAM have specialised in the redesign and remanufacture of troublesome components by 'engineering out' known failure points and weaknesses to reduce overall maintenance costs and rig down times.


COMPONENT REBUILDS

Full Machine Overhauls – Ground up rebuilds in house for a large range of tracked, tyre, and stationary plant. Offering full control of work scope with a designated Project team. Capabilities to overhaul every component, ability to manufacture and test all hoses to MDG15/ MDG41 specifications, full machine spray booth, engineering team for upgrades, recommendations, failure analysis and conversions.

Component rebuilds, either built to customer spec or CRAM recommended specifications from Final Drives, Slew Box's, Valves Air and Hydraulic, Hydraulic Components – Pumps, Motors, Hydraulic Cylinders, Rotary Head Box's and Pump Drive Box's. CRAM are also able to provide your business with a single source repair and reconditioning of high-performance pumps and motors. CRAM test and repair to manufacturers specifications with individual component tracking if required.

Full Tailored Solution dependent on scope and desired life plan of machine offering lower cost per hour run time, extended life, and improved functionality of a large range of equipment.





Reichdrill Platform Blast Hole Drill Rigs

CRAM is the exclusive Australia/New Zealand distributor for the Reichdrill, TM Bohrtechnik, and Technidril Eurofor product lines.

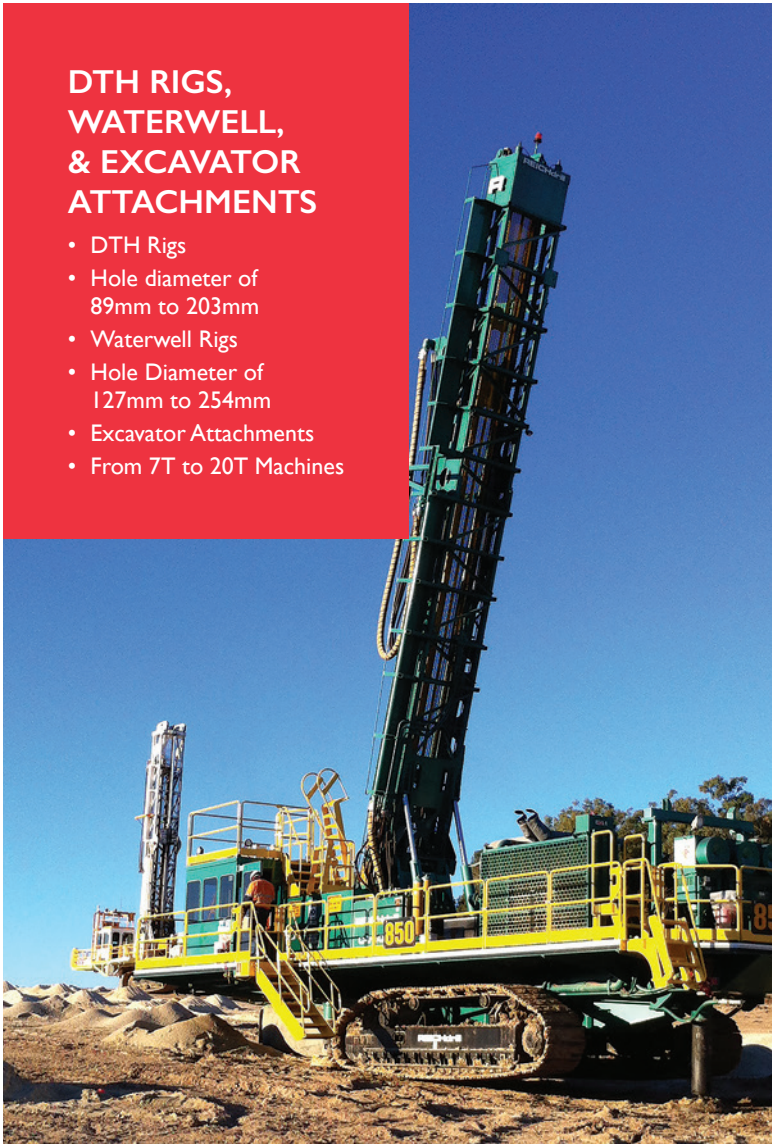
We supply ground up solutions for all blast hole drilling requirements ranging from component overhauls to rig rebuilds and provide a full range of undercarriage components.

A VIABLE COST-EFFECTIVE ALTERNATIVE

- Blast Hole Drill Rigs Manufactured in the USA
- 24,000Lbs to 90,000Lbs in Pulldown Pressure
- Hole diameter of 127mm 311mm
- Drilling Depth 36M to 72.3M
- Single Pass options available
- Various Compressor and Engine Options
- MDG15/41 Factory Fit

DTH RIGS, WATERWELL, & EXCAVATOR ATTACHMENTS

- DTH Rigs
- Hole diameter of 89mm to 203mm
- Waterwell Rigs
- Hole Diameter of 127mm to 254mm
- Excavator Attachments
- From 7T to 20T Machines





Underground Mining Equipment

CRAM are agents for Fletcher Mining Equipment and also undertake repairs and refurbishments of all types of hydraulically driven underground mining equipment including bolters and drilling equipment.

CRAM has business partnerships with an extensive range of world class suppliers and quality products.

FLETCHER MINING

CRAM is proud to be a partner and distributor for Fletcher Mining. Fletcher manufacture a wide arrange of equipment for the underground coal and metal/non-metal mining industries. Our partnership with Fletcher Mining has delivered a number of large OEM underground mining machines and products. We also undertake repairs and refurbishments of all types of hydraulically driven underground mining equipment including bolters and drilling equipment.





DIESEL ENGINE TEMPERATURE SENSING

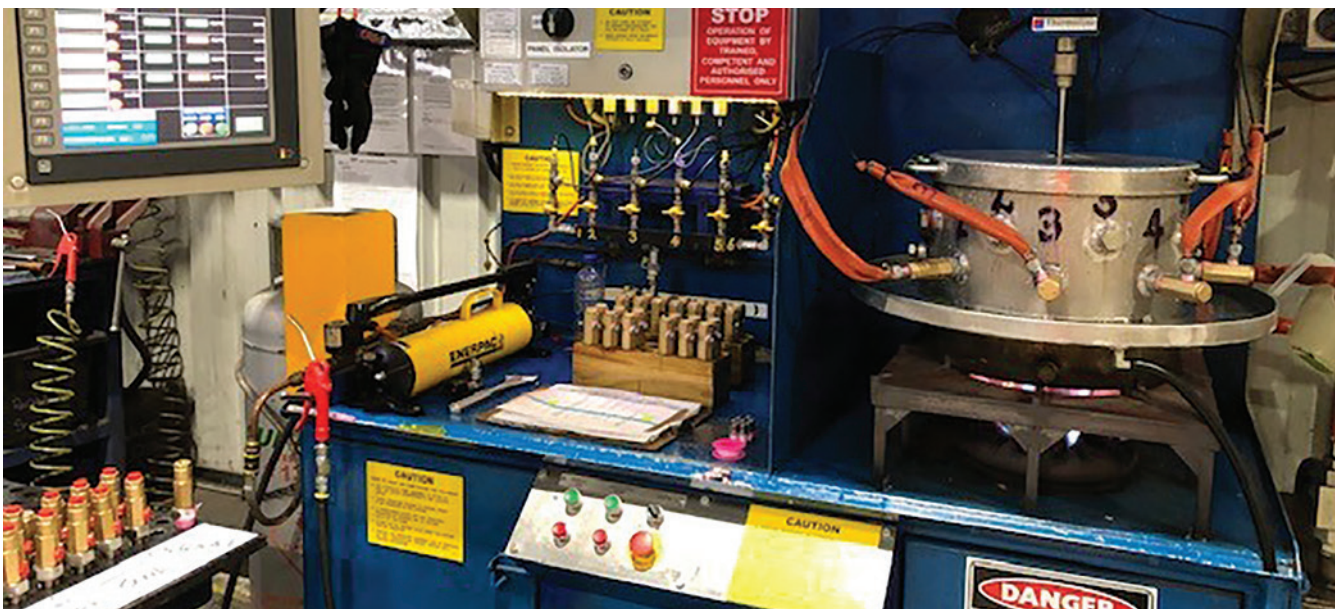
CRAM are certified to test, repair and certify sentinals and amots for the underground mining fraternity, with vendor programs in place, CRAM can keep all your legislative requirements up to date and manage inventory units.

CRAM Temperature Sensor Testing System Unit has been designed to test the functionality, the reliability and the accuracy of the temperature sensor valves.

It has been designed and proven to maintain the highest Australian laboratory testing standards with National Association of Testing Authorities, Australia (NATA), AS ISO/IEC 17020. Advanced Supervisory Control And Data Acquisition (SCADA) System complete with a Parker Hannifin HMI touchscreen and an OMRON PLC system.



NATA certified pressure and temperature transducers are used. The custom designed and constructed heating system uses closed loop control to ensure the most accurate temperature system available.



Specialised Maintenance Services

CRAM provides customers with a single point of contact for a wide range of engineering and maintenance services.

This in turn ensures consistently high levels of safety, quality and responsiveness.



Our principal activities include the provision of highly trained trade personnel in the following disciplines:

Mechanical

Fitters, machinists, plant mechanics and pipe fitters.

Fabrication

Boilermakers and fabricators, site and workshop based.

Welding

Specialist welders procedure qualified in TIG, MIG and Stick.

Lubrication

Specialising in scheduled maintenance, installation and repairs of lubrication systems.

Rigging

The team specialises in general day to day maintenance, plant repairs, shutdowns and project work and is reinforced by comprehensive workshop facilities and a 24/7 availability.





Some of the industries serviced include:

Power Generation

Revolving around general site maintenance and shutdown and project work

Mining

Specifically day to day and shutdown maintenance activities in coal handling and preparation plants that also includes equipment refurbishments

Cement Milling and Batching Plants

Marine Industry

Including tugs, pilot and cargo vessels

Port Facilities

Including asset management, structural repairs and general mechanical maintenance

Steel Industry

Specifically shutdowns, equipment overhauls, mechanical projects and asset management

Quarries

Relating to fabrication, mechanical maintenance, down days and project based work



With a wealth of knowledge that include engineering and drafting, fluid power, electro-hydraulics and product sales, complemented by a full range of undercarriage products, enables the complete delivery of practical and cost effective solutions to our customers operating assets.



Electro-Hydraulic Engineers

CMA is a solution-focused specialist engineering company with a long history of building high performance equipment and solving complex problems for our clients.

Part of the CRAM business CMA's core people are professional engineers originating from the steel industry in the Illawarra in the mid 90s. Since that time we have built a team of over 20 designers, engineers and specialist technicians servicing a range of industrial, mining, manufacturing and tertiary education clients.

CMA combines high levels of expertise in hydraulics, electronics, software engineering and analytical capability to provide innovative and efficient hydraulic solutions.

CMA offer a wide range of hydraulic products, on-site and engineering related services.

ENGINEERING SERVICES

- Hydraulic System Design
- Oil Lubrication System Design
- Closed Loop Motion Control
- Project Management
- Hydraulic System Energy Audits
- Mechanical Design
- FEA Structural Analysis
- Drafting Services 2D & 3D
- Expert Witness Services
- Strength checks for mining equipment
- Hydrostatic Bearing Lubrication Systems
- Water Hydraulic Systems
- Hydraulic Pipework Design

ON-SITE SERVICES

- Hydraulic Troubleshooting
- Pipework Installation
- Pipework Flushing
- Site Maintenance – Hydraulics
- Site Maintenance – Process Valves
- Gas Plant Shutdowns
- Pipe Cleaning
- Hydraulic System Audits
- MDG41 Compliance Audits
- Rolling Mill Gap Control Cylinders
- Process & Cryogenic Valve Repair
- Gas Turbines – Site Service Y&F valves and IGVs

HYDRAULIC PRODUCTS

- Bachus ORID O ring tester
- Delta RMC 75 & 151 Motion Controllers
- CMA Aluminium Swaging Machine
- Bosch/ Rexroth Hydraulic, Pneumatic and Linear Motion Products
- Hydraulic Lockout Valves
- FATController
- Strip Steering/ Edge Guide Systems
- Easy-to-Open Ball Valves
- Automated Brinell Test Machine for Steel Plants
- Portable Servo Controller

VALVE REPAIRS

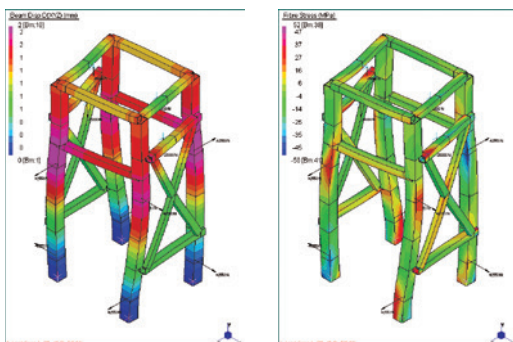
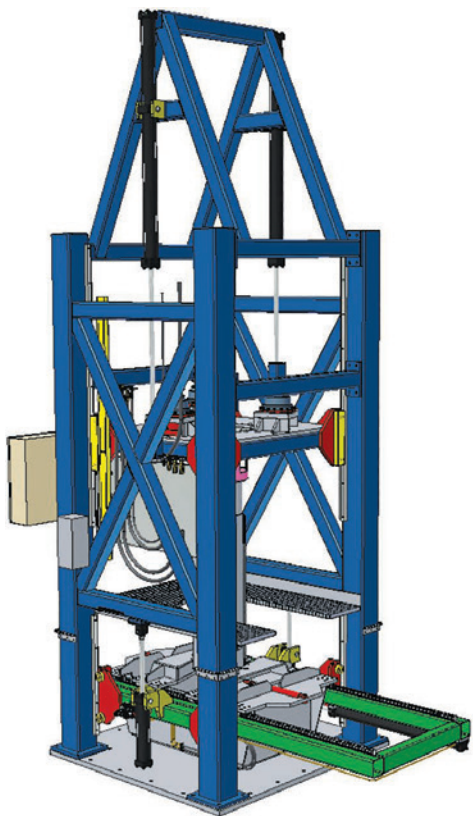
In addition to designing and building Electro-Hydraulic systems CMA is a specialty repairer of hydraulic servo and proportional valves, and gas control valves used in the power generation sector. Our team of technicians successfully test and repair many hundreds of valves each year, providing certification and calibration to various applicable standards.

MECHANICAL DESIGN AND FEA ANALYSIS

CMA has designed a substantial amount of mechanical equipment and machines that are powered hydraulically and controlled electronically.

CMA's in-house FEA, mechanical and electrical design capabilities have allowed us to design and develop numerous complete machines used in manufacturing, mining and a range of other industries.

The same skill set has also allowed us to complete many machine and plant upgrade projects.



Test System Specialists



CMA has been designing and manufacturing material test equipment since the 1990s. We produce a range of standard actuators and controllers and together with our in-house, local engineering capabilities allows delivers a unique, solution- focused service to our clients.

OUR RANGE OF STANDARD TEST SYSTEM COMPONENTS

Lab Test Controller

CMA's Lab Test Controller (LTC) has been developed over multiple generations and with the benefit of 20 years of test control experience.

LTC is an easy to use, powerful, flexible test control solution that enables users to configure, run and record data for a wide range of test applications.

Specifications

- Available for 1-8 axes.
- Portable and desktop versions.
- Built-in, high speed data acquisition.
- Sequence Builder enables users to program unique multi-step test applications for automated or complex applications.
- The Special Function interface facilitates the rapid integration of custom software for highly specialised test applications.



Servo Actuators

Single-Rod Cylinders With Seals

CMA has long and successful experience with single rod / sealed actuators in static and dynamic applications to 80hz.

- Low cost.
- Complete actuator includes servo valve, 1um digital position feedback sensor and dynamic rated load cell.
- Available in any stroke length and a wide range of mounting options.
- Available with 2 seal options, both engineered by CMA to provide long service life and very low friction levels.
- Size ranges from 30 to 600kN, to suit 210 bar rated working pressure.



Equal Area, Ultra-Low Friction Actuators

With hundreds of examples built over the last 10 years, our CSA ultra-low friction actuators are an established, robust and reliable actuator for high performance test applications. Suited for hi-fidelity wave shape following, and high cycle/high frequency applications.

- 20, 40, 125 and 280kN standard sizes
- No piston or rod seals for almost zero friction
- Integrated servo valve interface
- Equal hydraulic areas for linear response
- LVDT, analog or digital position transducer options



CUSTOM TEST MACHINES

CMA's local engineering and ability to quickly design and build custom equipment make us an ideal option for special or unique applications. We frequently provide solutions based on a combination of a client's existing equipment with new actuators, load frames, or a controller resulting in more rapid system development and reduced cost.



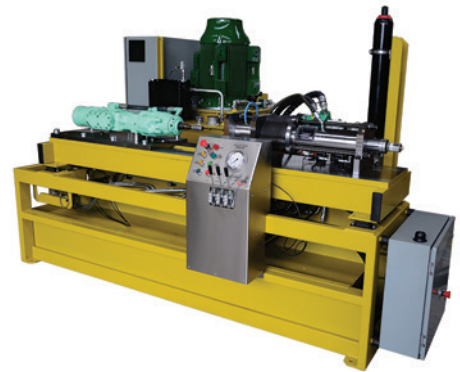
5-Axis 'Cubic Sample' Triaxial Test Rig

100kN/ 50 Hz vertical dynamic actuator and 50kN side actuators allowing for individual sample deflection in all 4 directions. Includes comprehensive motion controller and data-acquisition system with capability to log data from additional pressure sensors.



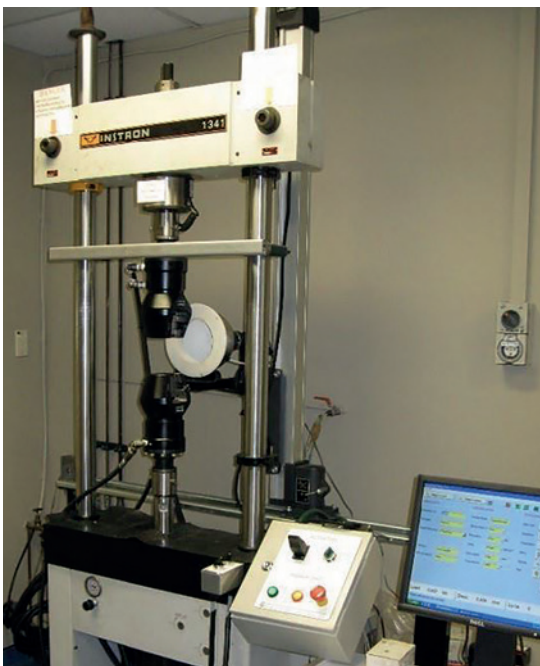
Lab Test Controller

High-speed, comprehensive control of test actuators and machines with both position and force control, full data-acquisition and real-time plotting. 1-8 axes, available in portable and fixed forms.



Mining Rock-Drill Performance Test Bed

Mining rock-drill performance test bed. Allows high-power hard-rock drills to be tested with full power, efficiency and frequency analysis to determine condition and repair scope of work.



MACHINE UPGRADES

Instron, MTS, ServoTest, Dartec, Tinius Olsen, Avery and more.

CMA has upgraded and modernised many brands of machine, with a typical upgrade covering:

- New controller and PC based operator software.
- Servo valve refurbishment.
- Actuator overhaul and modification.
- Supply and fit new transducers.
- Hydraulic power unit and load frame refurbishment.
- Safety upgrades.
- Calibration.
- Optional video extensometry.



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Mackay

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TAS

Launceston (Hydraquip)

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