



MINEFORCE
Australia



Corporate Profile & Capability Statement



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Corporate Profile

Mineforce - Integrity, Reliability and Excellence

In the mining and civil construction industries, Mineforce proudly stands for integrity, reliability and excellence. We have built our reputation on successfully delivering challenging projects safely, on time and to a high quality standard. For us reputation is everything!



Company Overview



Mineforce Australia Pty Ltd is a leading mid-level construction and steel fabrication company based in Townsville. Mineforce Australia has built an enviable record of consistent success in the delivery of challenging projects throughout regional and remote Australia safely, on time and to a high quality standard.

Mineforce Australia has delivered positive outcomes for clients on construction and fabrication projects up to \$50 million. The company's growth has brought together a capable and diverse team of management and staff as it has continued to build the range of services it offers.

This competitive edge is one of a number of factors that allow Mineforce Australia to exceed client expectations on a regular basis, across the full range of services the company provides.

Mineforce Australia operates three key divisions being:

- Projects
- Fabrication
- Plant & Equipment

The key to Mineforce Australia's success is the set of core values that underpins an organisation committed to understanding client and project needs, delivering flexibility in meeting these needs, consistently meeting agreed outcomes for our clients and business partners, and maintaining a focus on excellence in all areas of operation.

Vision, Mission and Values

Vision

Mineforce will at all times be -

- **respected** for our integrity when dealing with clients, partners and our workforce;
- **valued** for the quality of the products and services we deliver;
- **admired** for the enthusiasm and expertise of our people;
- **consistent** in our ability to succeed beyond expectations; and
- **recognised** across our industry for our commitment to excellence.

Mission

Mineforce will deliver construction, project management and steel fabrication services across Australia to meet or exceed our clients' expectations. In achieving this, we will maintain our commitment to quality, be flexible in our ability to meet client requirements, be honest in our dealings with others and create acknowledged benefit for our clients and our business partners.

We are committed to maintaining a safe workplace and to maintaining the sustainability of the natural environment in which we operate. We are committed to our team and to the skills, knowledge and shared values that underpin our success.

We will maintain our focus on ensuring Mineforce meets its profit, quality and growth goals.

Values

These values guide and direct all aspects of Mineforce's operations, business development and administrative activities.

- **Integrity** - we will always be fair and honest in our working relationships with our clients, our business partners and each other.
- **Reliability** – our business is built on our ability to deliver on time, every time, this is what our clients expect of us, and what we expect of ourselves.
- **Reputation** – our reputation is paramount to our business, we will always strive to enhance our reputation and to avoid any actions or activities that could damage this valuable asset.
- **Flexibility** - the wants and needs of our clients are our first consideration, we will at all times try to maintain the flexibility needed to understand and satisfy client requirements.
- **Mutuality** - our success as a company can only be sustained if that success is mutual to our clients our subcontractors, our suppliers and our team.
- **Quality** - we seek to achieve excellence in all areas of our business, in our internal operations and through the consistent quality of the products and services we deliver.
- **Safety & Environment** - we are totally committed to our safety and the safety of those who work with us, as we are to the sustainability of the natural environment in which we operate.
- **Team** - our success will always be dependent on our skills, knowledge, experience and enthusiasm, how well we work for each other and our collective commitment to excellence.

Management Team



Martin Hansen
Managing Director

Managing Director and founder, Martin is responsible for setting the strategic direction for Mineforce Australia and for providing leadership to the operational management of the company. Establishing Mineforce in 1998, Martin brought more than 20 years' experience in the mining and construction industries to the new enterprise. He built Mineforce Australia around his personal commitment to excellence, his honesty and integrity in dealing with business partners and his ability to build and maintain a team of highly skilled individuals who share his beliefs and his passion. This passion drives the Mineforce Australia commitment to being recognised as one of the leading companies in Australia for the delivery of reliable and cost-effective single-source construction solutions.



Cliff Potter
General Manager

Cliff is responsible for leading and coordinating the day-to-day operations of Mineforce Australia. This includes direct management of the company's offshore fabrication activities and ensuring the company achieves its corporate goals on a year-to-year basis. Cliff joined the Mineforce team in 1999 as a boilermaker, and moved on to undertake roles as an On-Site Supervisor, On-Site Foreman and Workshop Manager before being appointed General Manager in 2011. He combines extensive fabrication and construction experience with astute problem-solving skills, providing the leadership to the Mineforce team and driving the company's day-to-day commitment to excellence. Cliff has the ultimate responsibility in ensuring Mineforce Australia is consistent in delivering its core promise of a quality product, on time and on budget. Cliff also provides oversight to the Mineforce Australia Integrated Management System and the company's Quality Systems.



George Holland
Manager - Projects

George joined the Mineforce Australia team in July 2012 to provide direction and depth to the company's project management activities. As a key member of the management team, George has provided significant input into redefining the company's strategic direction and developing the company's planning processes. George is responsible for the planning and execution of major projects and for providing leadership to the project teams. A chartered professional engineer (CPEng), George brings to Mineforce over ten years' experience in the management of mining and heavy industry projects across Queensland and Western Australia. George has worked with some of Australia's largest mining and construction companies and has an extensive background in project and quality management.



Brendan Pickering
Estimator

Brendan is responsible for ensuring all Mineforce quotations and tendering proposals are accurate, comprehensive and delivered within required timeframes. The integrity of this process ensures Mineforce maintains strong positive relationships with suppliers and its clients, delivering on Mineforce's promise of a quality product on time. Brendan joined Mineforce Australia in 2010 and his background as a boilermaker provided an excellent platform from which he developed his detailed technical and commercial understanding of the construction process. He has developed a keen ability to assess the material, equipment and labour requirements of a project. Brendan is an enthusiastic and committed individual who understands the need to maintain a client focus at all times.



Paul Saint
Workshop

Joining Mineforce Australia in 2011, Paul is responsible for the daily operations of the Mineforce Australia Townsville fabrication and machining workshops. Along with safety, his focus is on meeting the Mineforce promise of a quality product, on time and on budget, delivered through his team of highly skilled tradesmen. Paul is a boilermaker by trade with over 30 years' experience in structural steel fabrication. He is passionate in his commitment to excellence, his pride in the quality of workmanship the Mineforce workshop delivers on a daily basis and the ability of his team to meet the demands of quality assurance and client expectations.



Beverley Watson
Administration Manager

Bev has been with the company since 2007 and is responsible for providing comprehensive finance and administration support to all departments, as well as supporting business development and company strategy formulation. Bev has considerable knowledge and experience of finance and small business operations and has put considerable work into streamlining the financial processes and procedures at Mineforce Australia to ensure the company meets expectations of its clients and creditors.



Geoffrey Dengate
HSE Manager

Geoff is responsible for the successful delivery of safety management across the various operational divisions of Mineforce Australia. He has a Graduate Diploma in Occupational Health and Safety and has worked as a safety professional in the mining, marine and construction industries for over 15 years. Geoff is well regarded as a very capable safety champion, having delivered many successful projects in Government and Tier 1 organisations. Geoff understands the importance of working effectively in a team environment to achieve ongoing and lasting HSE goals and develops a safety culture that delivers maximum value for both the company and client.



Image courtesy of Ernest Henry Mine

Our History

Mineforce Australia was founded in 1997 by Martin Hansen, who brought to this new business considerable rigging and steel construction experience in both the mining and civil sectors, along with experience in mine maintenance and plant and equipment demolition. One of the first challenges for the new business was demolishing redundant furnaces and associated equipment from the MIM Copper Refinery in Townsville, a challenge that required removing over 2000 tonnes of equipment. Mineforce quickly established its reputation with MIM as an efficient and reliable operator and went on to undertake a range of MIM projects at the copper refineries, the Port of Townsville and Ravenswood Gold.

In 1998, Mineforce Australia was approached by Prok Major Projects to undertake the mechanical installations for the WMC Phosphate Hill fertiliser project at Townsville Port. This included installing a

wide range of material handling infrastructure such as feeders, conveyors and trippers for both the rail unloading system and the ship loading system. Mineforce successfully completed the project on schedule, building the company's reputation and providing a solid platform to engage on a range of larger projects.

Xstrata's acquisition of MIM Holdings in 2003 led to a further strengthening in business relationships, and Mineforce was invited to tender the supply of all rigging and scaffolding services for the annual re-bricking shutdown at the Mount Isa Mine site, including the replacement of insulation and stainless steel cladding to the mine's main gas stack. Mineforce was successful with its tender submission and completed all the work to tender requirements. The company went on to provide services to a range of Xstrata divisions across the Mount Isa region over the next six years, growing its



workforce to over 100 personnel in the process.

From the beginning, Mineforce was involved in work that required refurbishment or small scale fabricated items to complete construction and installation projects. The company initially established a small fabrication facility for this purpose but the diversity of jobs offered by Xstrata made the need for a full steel fabrication and machining workshop obvious. Mineforce established its current workshop facility in Townsville in 2005, then expanded the facility to double its size in 2009, installing over \$1.4 million in new machinery. This expansion was undertaken to retain key personnel during the global financial crisis and proved an astute decision, as the facility has strengthened the company's long-term competitive position. Mineforce now operates one of the best equipped steel fabrication and machine shops in North Queensland.

At the urging of a colleague, Martin Hansen visited China in 2007 to inspect a range of major steel fabrication workshops. It was evident that, with a strategic approach to managing quality, Mineforce could develop the capacity to deliver large scale supply projects not previously available to, or considered from a company of this size. Seizing the opportunity, Martin established a partnership with a major workshop and most importantly, developed a detailed strategy for quality control. Ongoing research and effective management has resulted in offshore fabrication becoming a major factor in the growth and success of Mineforce.

Since 2008, Mineforce has grown its capability to deliver major steel fabrication projects from its offshore partners, within schedule, meeting or exceeding all Australian standards and with substantial cost savings for the client. Mineforce augments its international fabrication capacity with the Townsville-based fabrication and machine workshops, providing the ability to separate and fabricate individual sections and deliver on very short timeframes.

In 2012, it was this combined local and international fabrication capability that enabled Mineforce's engagement in Stages 2 and 3 of Ernest Henry Mine's new Headframe, part of the 'Life of Mine' extension and transition from open cut to underground mining. This project comprised the fabrication, delivery and construction of 1,200 tonnes of steelwork. Mineforce was contracted to meet a delivery time of 16 weeks and delivered all steel on site, to specification and prior to it being required for construction. Mineforce achieved similar outcomes in undertaking construction of Glencore's new bulk handling facilities on Berth 8 at the Port of Townsville, with the first of the major steel deliveries on site one month ahead of scheduled requirements.

Over the past six years, Mineforce has developed its project management capabilities to successfully undertake SMP and EPC and Management contracting roles. Mineforce maintains a professional and specialised Project Management team with the appropriate skills to manage the range of projects the company undertakes.

Corporate Information

Mineforce Australia Company Information

Full legal name of the Company	Mineforce Australia Pty Ltd
Trading or business name/s	Mineforce Australia
Legal status of the business (e.g.: registered company, sole trader, partnership)	Registered Company
State of incorporation	Queensland, Australia
Australian Company Number (ACN) or other entity identifier(s)	ACN – 080 955 648
Australian Business Number (ABN)	ABN – 82 080 955 648
GST Status	100% registered
Head Office Address	7-8 Reward Court, The Bohle QLD, 4818
Postal Address	PO Box 7566, Garbutt QLD, 4818
Telephone (General)	617 4759 0300
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E-mail	info@mineforce.com



Capability

Mineforce Australia operates three separate but integrated divisions, led by our Projects Division and supported by our Fabrication Division and Plant & Equipment Division.

Project Management

At Mineforce Australia, we help our clients achieve their organisational objectives through offering EPC and Management services.

We deliver a range of key benefits to our clients based on our operational flexibility, our reliability as a partner and our commitment to delivering mutual success for our clients and our suppliers.

Our project management approach is based on ensuring we have an initial comprehensive understanding of our clients' specific needs in relation to the project and more importantly, the outcomes they are striving to achieve. With this knowledge, we are able to:

- Review proposed construction methods and apply our expertise to develop initiatives and ideas for achieving efficiencies in both time and cost.
- Form a close partnership with our clients, including project managers, contract representatives and operational managers, to ensure key drivers of safety, cost, time, quality, scope and above all, client satisfaction are understood and delivered across all areas of the project.
- Establish a tailored fit of people and processes to achieve targeted project outcomes, as we understand that every client and every project is unique.
- Mobilise a project team that owns and understands the Mineforce values and integrates these values with those of the client.
- Initiate risk management processes that ensure input from all project stakeholders and facilitate early risk identification and regular review.

Core Capabilities

- Identifying and delivering benefits to our clients through all stages of the project life cycle.
- Providing the full suite of services including design, detailing, fabrication, construction and commissioning.
- Utilising the strengths and expertise of our multi-disciplined team to deliver results in Civil, SMP and E&I projects.
- Providing people and services that complement our clients existing internal systems and people.
- Being flexible and adaptable to meet client's needs, including assisting with change management to identify risk and corrective actions.
- Measuring and monitoring the project variables against project management plans and performance targets.
- Manage all areas of the project through:
 - i) Beyond Software – a cloud based collaborative program with an automated time and billing system and real time visibility into projects. This software streamlines our project processes creating efficiencies in delivery.
 - ii) Microsoft Project – facilitates project planning and scheduling including critical path identification and monitoring to keep projects on track.

Project Experience

Our experience in delivering benefits for our clients has come from projects throughout Northern and Central Queensland. We have successfully delivered projects up to \$50 million, and target work in minerals processing, materials handling and general heavy construction.

See our project briefs starting on page 20 for more information.



Construction

Mineforce Australia has been successfully delivering projects in mining, marine, industrial and civil construction for over a decade. During that time, we have built our reputation for reliability by consistently delivering projects on time and on budget. We support this with the operational flexibility needed to meet client demands and the ability to deliver innovative and effective solutions. We have a track record of successfully completing projects in challenging environments.

Mineforce provides high levels of project control and productivity through a multi-disciplinary and experienced team of construction specialists. We support our projects with quality onshore and offshore fabrication services and ownership of an extensive range of plant and equipment.

Our approach

When initiating any construction project we consider it critical to ensure our planning and documentation clearly highlights the required project outcomes and deliverables. With this knowledge, we can:

- Prioritise safety in our work processes through Safety Management Plans, Risk Assessments, Project Risk Registers, Safe Work Method Statements and Job Safety and Environment Analyses.
- Establish systems of work with our client that address the safety, quality, scope and schedule requirements and that are benchmarked against our minimum standards.

- Implement recruitment processes to build a team with the experience, skills and qualifications needed to complete the project, along with the attitude, enthusiasm and commitment to embrace the Mineforce Australia values and express these values across all areas of the project.
- Develop innovative options and solutions to the challenges and issues that inevitably arise in any project to enable our clients to make informed decisions on the best way forward.
- Maintain strong and effective partnerships with all stakeholders in the project through the integrity of our dealings with clients, business partners and employees, and by establishing a working environment based on fairness, honesty and mutual respect.
- At all times work to meet or exceed industry standards.
- Reinforce our company value of reliability by delivering on our promise.

Core Capabilities

- Structural steelwork
- Platework, including chutes, hoppers, silos, tanks
- Wear linings
- Mechanical including pumps, motors, feeders, screens, grizzlies, trommels, pulleys, drives, conveyor belting
- Steel and alloy piping
- Civil and concrete works
- Water storage systems
- Production, storage and distribution facilities
- Plant relocation
- Heavy lift craneage
- Plant maintenance and shutdown services
- Material handling systems
- Electrical and instrumentation
- HDPE piping
- HVAC and other service ducting

See our project briefs starting on page 20 for more information.



Fabrication

Mineforce Australia offers clients significant flexibility in the range of fabrication services it can deliver, from production of small individual items that may be needed on site urgently to large construction fabrications over 1000 tonnes. This flexibility is based on a well-equipped fabrication and machining workshop facility in Townsville (over 2400m² undercover), and offshore fabrication facilities with the capacity to deliver large project fabrication requirements on time and to Australian quality standards.

Mineforce has achieved outstanding success in the production and delivery of offshore fabrication services through our rigorous adherence to production quality systems and our requirement that Mineforce representatives monitor all production activities in the country. Further to this, we ensure all offshore fabrications are subject to comprehensive testing prior to leaving the workshop, ensuring delivery of a high quality product that consistently exceeds client expectations. Mineforce understands quality is paramount, and while this approach means we will not be the lowest cost offshore fabricator, it does ensure we can consistently deliver a quality, cost competitive product, within agreed timeframes.

Fabrication Services

- Detail drawings
- Plate work
- Structural steel
- Vessels and tankage
- Stainless steel chutes and piping
- Conveyor components
- Heavy machining
- CNC machining and bulk components
- Pipework and rubber lining
- Linings including wear and hardfacing
- Large scale offshore fabrication facilities (over 500 tonnes)

Fabrication Facilities

- 1600m² undercover
- 3 x 10 tonne Overhead Traveling Cranes
- 1 x 5 tonne Overhead Traveling Crane
- Plate Rollers : 25mm grade 250 plate x 3,200mm wide capacity
- Brake Press : 12mm grade 250 plate x 4,000mm wide capacity
- Guillotine : 12mm grade 250 plate x 4,000mm wide capacity
- CNC Profile Cutter : Bed 3,200mm x 9,000mm, Plasma cutting to 10mm thick plate, Oxy Fuel cutting to 80mm thick plate
- Punching : 22mm diameter in 20mm plate / 50mm diameter in 12mm plate
- Flat Bar Shearing : 300mm x 20mm flatbar capacity
- Round Bar Shearing : 45mm diameter capacity
- Square Bar Shearing : 45mm x 45mm capacity
- Angle Shearing : 150mm x 150mm x 12mm Equal Angle capacity
- Welding Rotator : 1,200mm diameter x 3 tonne capacity
- Welding Manipulators
- Mig, Stick and Tig welding processes

Machine Shop Facilities

- 800m² undercover
- 1 x 2 tonne Overhead Traveling Crane
- 1 x 5 tonne Overhead Traveling Crane
- Conventional Lathe 2,700mm between centres with 1,200mm swing over bed
- Conventional Lathe 1,900mm between centres with 270mm swing over bed
- CNC Lathe – 1,450mm between centres with 300mm swing over bed
- CNC Milling –1,000mm x 550mm x 550mm
- 300 tonne H Press





Cranes

Mineforce Australia operates a fleet of cranes tailored to meet our needs undertaking major construction projects in regional and remote Queensland. We operate the only 300 tonne crawler crane based in North Queensland and when not required on Mineforce projects, all cranes are available for hire through Mineforce Plant & Equipment.

- Crane Facilities
- Liebherr LR1300 SX W – 300 tonne Lattice Boom Crawler Crane
- Kato NK 450 – 45 tonne Hydraulic Crane
- P&H 670-S – 70 tonne Lattice Boom Crawler Crane
- Kobelco RK200 – 20 tonne Rough Terrain Crane
- Terex Franna AT-15 – 15 tonne Articulated Crane



Plant & Equipment

In addition to its heavy lift cranes, Mineforce Australia maintains a large range of construction machinery and equipment most of which is available for hire including:

- Boomlifts x 3
- Poly Welders
- Diesel Welders
- Backhoes x 2
- Excavators x 2
- Bobcats x 2
- 4 tonne Telehandler
- Generators x 5
- Heavy Vehicles (tipper, semitrailer)

See Mineforce Plant & Equipment on page 33 for more information.

Safety, Sustainability & Systems

The Mineforce Approach

The Mineforce approach to sustainability in our business is based on an Integrated Management System committed to delivering continual improvement across our health and safety, environmental, quality and industrial relations performance.

This approach focuses on four key areas of responsibility:

- Protecting our people and those who share the workplace with us.
- Delivering a consistent and quality product.
- Nurturing the community in which we work and live.
- Maintaining the natural environment in which we operate.

As we expand our capabilities to deliver more complex and diversified projects and complete project delivery solutions for our clients, our existing policies and systems are being continually reviewed and revised to support alignment and growth, and to add value for our clients. All policies and systems are actively communicated to personnel to ensure we achieve compliance and continuous improvement.

Sustainability

Sustainability is integral to the governance of our company and at all times we strive to deliver sustainable outcomes for our clients, our people, our suppliers and the community in which we work. We constantly identify opportunities to improve our safety and environmental practices and seek to balance the interests of all stakeholders against the demands of business to achieve sustainable health, safety and environmental outcomes.

We recognise our clients' expectations that we deliver exceptional safety and environmental practices at all times. We accept our responsibility to understand our clients' safety and environmental policies clearly and ensure we consistently meet or exceed these requirements.

We consider our integrated Health, Safety and Environmental (HSE) system, aligned with

Australian Standards AS 4801 (Occupational Health and Safety Management Systems) and ISO 14001 (Environmental Management Systems) to represent best practice in safety and environmental management.

Safety

At Mineforce, the safety and security of our people and those we work with is our number one priority. We aim to achieve and maintain best practice in our approach to workplace safety at all times. We have worked consistently to develop a strong workplace safety culture within Mineforce, based on integrating safety as a core value of our business. This approach is based on all staff members understanding they are responsible both individually and within their teams for maintaining a safe workplace, for themselves and for those who work beside them.

Our approach to workplace safety is proactive, based on a thorough approach to identifying and documenting risk in the planning phase of projects, in the day-to-day operation on site and in the workshop environment. This is managed through a comprehensive safety program aimed at:

- Providing safety leadership in all areas of operation while encouraging input from staff and stakeholders.
- Communicating operational risks and constantly updating risk information.
- Accurate reporting and analysis of safety performance including feedback from clients and other stakeholders.
- Achieving best practice in workplace safety across all areas of operation.

Quality

Mineforce Australia received accreditation from SAI Global for ISO 9001-2008 Quality Management System in April 2009. To ensure compliance and continuous improvement in our quality systems, we undertake a regular auditing programme. Our auditors have completed the Internal Auditor Training program by SAI Global to provide independent and objective assessment of compliance.



All local and offshore fabrication activities, from material procurement to packaging, are consistently monitored and undergo comprehensive and rigorous inspections to ensure quality of products is maintained at all times. Our overseas alliance companies are accredited in accordance with National GB/T 19001-2000 ISO and ISO 9001-2000 standards.

Environment

Mineforce recognises its responsibility to maintain sustainable environmental practices across all areas of our operation. We believe our approach based on constantly pursuing opportunities to reduce our environmental footprint and minimise our carbon output is not just good for the environment, but is also good for business.

We encourage our staff to have an input in our environmental management systems and generate ideas to make our business operations more energy efficient and environmentally friendly.

At all times we take account of the environmental policies of our clients and work within these policies

to support and sustain the environmental objectives of each project we undertake.

Community

Mineforce Australia recognises the importance of community and its responsibility to engage with the communities across the areas in which we operate. As a company, we are particularly focused on supporting young people of our community, our future, and providing sponsorships and other support to youth based activities and organisations.

Wherever possible we seek to engage with Australia's Indigenous community, to provide opportunities for employment, training and development. We recognise that many of our business partners work closely with the Traditional Owners of the country on which they operate to provide business opportunities for Indigenous suppliers and training and development opportunities for Indigenous staff. Mineforce Australia is fully committed to working with our partners to support and assist their Indigenous engagement programs.

Projects

Berth 8 Upgrade

Client:	Xstrata Copper
Location:	Townsville Port
Timeline:	2012 - 2014
Contract Value:	\$22 Million approx.
Contract Type:	Lump Sum
Services:	Design & Detailing, Offshore & Onshore Fabrication, Structural, Mechanical, Piping, Civil & Electrical Installation

Client Need

Xstrata Port Operations undertook a major initiative at the Townsville Port to relocate its shipping operations from Berth 7 to Berth 8 and in the process to significantly increase the loading capacity of mineral concentrates and other bulk materials. As part of the upgrade, two new conveyors will be installed, as well as a new ship loader and associated bulk material handling infrastructure that has been designed to increase capacity from 1200 tonnes per hour to 3000 tonnes per hour. The project involves delivery of more than 1000T of steel and the completed works by Mineforce will play an integral part in safeguarding future exports for Xstrata Copper and its partners.

Project Description

Mineforce is responsible for the design, detailing, fabrication and construction of the CV10 tubular conveyor and detailing, fabrication and construction of the remainder of the new bulk material handling infrastructure. The new infrastructure will link storage facilities adjacent to Berth 7 to the new shiploader on Berth 8. Mineforce are also responsible for civil, structural, electrical, mechanical and piping works.

Scope of Work

- EPC and Management Contract
- Design, fabricate and erect CV10 Conveyor
- Fabricate and erect 3x Transfer Towers
- Fabricate and erect CV11 Conveyor
- Fabricate and erect steelwork and precast panels for MCC Building
- Install Tripper Car and 400T Shiploader
- Carry out electrical works on all of the above
- Tie-in and commissioning of system

Highlights & Achievements

- The new infrastructure will have more than double the capacity of current facilities and will allow significant future expansion of bulk materials exports including zinc concentrates, lead concentrates, magnetite and fertilizer.
- Timely completion will ensure our clients critical operations are removed from aging assets on Berth 7.



Ernest Henry Mine Headframe

Client:	Ernest Henry Mining
Location:	Ernest Henry Mine, Cloncurry
Timeline:	2011 - 2013
Contract Value:	\$6 Million approx. (combined)
Contract Type:	Lump Sum
Services:	Detailing, Onshore & Offshore Fabrication, Structural Installation

Client Need

The Headframe Erection project for EHM is an integral part of the mines transition from open cut to underground mining. It involved the construction and installation of a temporary Skyshaft and Winder Building for the shaft sink, followed by the installation of a 70m high Headframe and permanent Winder Building. This infrastructure was fundamental in boosting efficiency and effectiveness of mining operations and subsequent extension of life of mine.

Project Description

Mineforce was initially engaged for the erection of the new permanent Headframe. During the course of Stage 1 erection, Mineforce was further engaged to fabricate Stages 2 and 3, being approximately 700T for the upper Headframe steelwork and a further 400T for the permanent Skyshaft. The award of these further fabrication contracts to Mineforce was in an endeavor to expedite the remainder of the Headframe installation that had fallen behind schedule due to shaft sinking activities.

Scope of Work

- Erection of temporary Skyshaft and Winder Building
- Erection of lower Headframe – 530T
- Fabrication of upper Headframe in overseas facility and Townsville workshop
- Erection of upper Headframe – 700T
- Fabrication and erection of Winder Building
- Fabrication of Skyshaft in overseas facility and Townsville workshop – 400T
- Mineforce consistently collaborated with the client and used its construction expertise to complete the structure with minimal disruptions to shaft sinking activities, which were on critical path for project completion.
- Mineforce recommended design changes during constructability assessments to achieve significant cost savings in craneage to the Principal and minimised risks associated with working at height.
- Mineforce was able to mitigate major delays in Principal supplied steelwork by taking over the fabrication of the upper Headframe and Winder Building, driving the course of the project.

Highlights & Achievements

- A challenging concept of this project was working in a limited space on site with the Shaft Sink contractors. This required significant and thorough coordination between all parties to achieve completion in a safe and timely manner.
- The project was achieved on time.
- This Headframe is only the second to be built on the east coast of Australia in the last decade.
- Supply and delivery of 1100T of heavy fabricated steelwork from both our local and offshore fabrication facilities happened well ahead of schedule and without defect.
- Mineforce introduced its new Liebherr LR1300 SX W 300T Crawler crane, which safely carried out all major lifts.



In Pit Dewatering

Client:	Ernest Henry Mining
Location:	Ernest Henry Mine, Cloncurry
Timeline:	2011 - 2012
Contract Value:	\$6 Million approx. (combined)
Contract Type:	Lump Sum and Schedule of Rates
Services:	Structural & Piping Fabrication, Structural, Mechanical & Piping Installation

Client Need

The new In Pit Dewatering system at Ernest Henry Mine is used to control accumulation of water within the open pit, following major rain events and emergency water inflows. Mining operations have been severely affected in previous wet seasons and production significantly reduced.

Project Description

Mineforce was responsible for the structural, mechanical and piping installation of four pump stations and interconnecting pipework. The four pump stations were installed throughout the working levels of the open pit mine. The water is collected in sumps via drainage channels along the pit haul roads, then pumped via interconnecting rising mains (approximately 16km) from one pump station to another, and finally discharged into a designated surface water storage facility for recirculation within the Concentrator.

Scope of Work

- Fabrication of 139T structural steel for all pump stations
- Fabrication of 61T pipe work for all pump stations
- Installation of structural steel and pipework on site
- Installation of electrical switch rooms, 10 x 850kW KSB centrifugal slurry pumps
- Installation of 16km HDPE pipe 630 - 450 diameter
- Joint commissioning of all the pump stations with Xstrata

Achievements and Highlights

- Although the installation of the pump stations was a Greenfields project, it was still necessary to carry out most of the installation during the final stages of the open cut mining process at EHM. Each of the pump stations were constructed on narrow switchbacks and roads, and access ways were shared with heavy mining equipment and haul trucks. No lost time injuries were recorded in this hazardous working environment.
- Safe handling and installation of 16km poly pipeworks.
- Project completed to the approved schedule.
- Resolved pipe route clashes with over/under excavation through our detailers and collaboration with the client's team.
- Supply and delivery of 200T steelwork and piping from both our local and offshore fabrication facilities ahead of schedule.





George Fisher Surface Crusher Upgrade

Client:	Xstrata Zinc
Location:	George Fisher Mine, Mount Isa
Timeline:	2011 - 2012
Contract Value:	\$4 Million approx.
Contract Type:	Schedule of Rates
Services:	Structural Fabrication

Client Need

Various quality fabricated steel packages were required for the installation of a new surface crushing system at George Fisher Mine. These upgrades were fundamental for Xstrata Zinc in improving plant production and achieving design nameplate goals.

Project Description

Mineforce was responsible for the supply and fabrication of all structural steel, totaling 900T and all fabricated in Mineforce's Townsville workshop.

Scope of Work

- Fabrication of screening station
- Fabrication of surge bin
- Fabrication of oversize chute
- Fabrication of undersize chute
- Fabrication of crushing plant conveyors
- Supply of idlers, idler frames and pulleys for the complete conveyor system

Achievements and Highlights

- Delivery of 900T of structural steel without defect under our accredited Quality Management System.
- Early in the project an accelerated schedule for delivery of structural steel was requested by our client. Mineforce stepped up to the challenge, organizing day and night shifts to successfully meet the new tight deadline.
- Project was completed with zero incidents.

Magnetite Storage Shed Extension

Client:	Xstrata Copper
Location:	Townsville Port
Timeline:	2010 – 2011
Contract Value:	\$6 Million approx.
Contract Type:	Lump Sum
Services:	Structural Fabrication, Civil, Structural & Electrical Installation

Client Need

The Magnetite Storage Shed project involved construction of a major 50m wide x 80m long extension to Xstrata Copper's existing bulk storage shed facility at the Townsville Port. The storage shed was required to accommodate the export of 1.2 million tonnes per annum of magnetite concentrate from its Ernest Henry Mining operation near Cloncurry. The storage expansion was a critical link in the company's logistics chain and a successful milestone in Xstrata Copper becoming Queensland's first exporter of magnetite concentrate.

Project Description

Mineforce was responsible for the structural fabrication and civil, structural and electrical installation of the project.

Scope of Work

- Fabrication and erection of building superstructure
- Fabrication, erection and commissioning of roof loading conveyor
- Fabrication, erection, commissioning and relocation of crossover conveyor
- Installation of dust curtains
- Roof and wall cladding for superstructure
- Civil works comprising the complete construction of pile caps, pedals and ground beams, as well as forming and pouring of concrete retaining walls, ground slabs and water tank ring beam
- Electrical installation comprising supply and install of:
 - HV cabling into substation
 - Lighting and control gear
 - Fibre optic into concentrate storage
 - Switch room, PLC and control room fit out and testing

Achievements and Highlights

- The project was successfully completed by our multi-disciplined team on time and within budget.
- All construction activities were carried out around an operating concentrate loading facility without disruption to the client's primary business activities.
- Transport and erection of building materials required careful coordination due to lack of available real estate for laydown and storage.
- Erection sequence and execution was successfully planned to be able to complete the erection of the superstructure from within the building footprint. This was due to a lack of available land around the complex for storage and height access equipment.
- The project was completed with an excellent safety record - zero incidents.

No 2 Concentrator Upgrade

Client:	Xstrata Zinc
Location:	Mount Isa Mine, Mount Isa
Timeline:	2008 - 2009
Contract Value:	\$50 Million approx.
Contract Type:	Schedule of Rates
Services:	Onshore & Offshore Structural & Piping Fabrication, Earthworks, Civil, Structural, Mechanical & Piping Installation

Client Need

The No 2 Concentrator Upgrade for Xstrata Zinc incorporated major improvements to increase operational efficiency and expand the production of zinc/lead concentrate to 8 million tonnes a year, 60% above the plant's current capacity. The project was a key transformational step for Xstrata Zinc in ensuring both the George Fisher and Mount Isa Mines continued to be profitable and in particular, the long-term viability of the zinc business. These improvements involved installation of a new Metso grinding mill, ball mills and flotation circuit to replace the existing plant and obsolete rod-and-ball grinding circuit.

Project Description

Mineforce was engaged by Xstrata Zinc to carry out onshore and offshore structural and piping fabrication, earthworks, and civil, structural, mechanical and piping works associated in the new flotation area of the No 2 Concentrator.

Scope of Work

- Fabrication and installation of flotation structural steel
- Fabrication and installation of flotation columns
- Fabrication and installation of 22 flatbed feeders and 3 collector conveyors
- Fabrication and installation of flotation concrete cast in steelwork
- Erection assistance with the placement of flotation tanks
- Fabrication and installation of flotation pipework
- Civil construction of flotation area foundations, bunding and concrete pavements
- Civil construction of precast flotation tank bases, including design and fabrication of molds
- Civil construction of ball mill foundations
- Civil construction of new transformer bay and blast walls
- Installation of electrical switch rooms

Achievements and Highlights

- The No 2 Concentrator upgrade was a combination of both Greenfield and Brownfield construction. Mineforce consistently liaised with operating and maintenance staff to ensure a high quality deliverable, while minimizing production downtime during installation activities.
- Supply and delivery of 600T of fabricated steelwork and piping from both our local and offshore fabrication facilities on time and without defect.
- Provided an experienced and capable project team that was able to work in with the client to maintain flexibility in numbers and deliver results in a cost effective manner.



George Fisher Warehouse & Five Star Heavy Vehicle & Equipment Workshop

Client:	Xstrata Zinc
Location:	George Fisher Mine, Mount Isa
Timeline:	2007 - 2008
Contract Value:	\$6 Million approx. (combined)
Contract Type:	Lump Sum
Services:	Warehouse – Structural Fabrication, Civil & Structural Installation

Client Need

The new warehouse at George Fisher Mine in 2007 was part of a major on site revamp project. Mineforce was contracted by Xstrata Zinc to construct a new 3,600 square metre warehouse to store critical spares for zinc operations including the Smelter, Concentrator and both George Fisher Mine and Black Star Open Cut Mine. The successful completion of the warehouse ultimately led to the selection of Mineforce to design, supply and construct the Five Star Heavy Vehicle and Equipment Workshop at George Fisher Mine.

Project Description

Mineforce was responsible for the structural fabrication, and the civil, structural and cladding construction of the warehouse, followed by, the design and construction of the Five Star Workshop.

Warehouse Scope of Works

- Preparation and construction of foundations and ground slabs and aprons
- Erection of steelwork
- Installation of cladding, flashings and down pipes
- Supply and installation of new office complexes, crib rooms and ablutions

- Installation of lubrication delivery system (oil) throughout workshop including piping
- Supply and installation of overhead cranes
- Supply and installation of cladding, flashings and down pipes
- Installation of roof mounted climate control system

Five Star Workshop Scope of Works

- Preparation of all design and detailed drawings for client approval
- Earthworks preparation and compaction
- Fabrication and erection of structural steel
- Completion of civil works including foundations, concrete slabs and aprons, drainage pits and wash down facilities for heavy and light equipment

Highlights & Achievements

- Selected out of a number of larger competitors as a result of our previous performances.
- Successfully delivered the first equipment facility of its type in the Mount Isa region.
- Completed all works safely, on time and within budget to the complete satisfaction of the client.





Fine Ore Feed Conveyor

Client:	Xstrata Zinc
Location:	Black Star Open Cut Mine, Mount Isa
Timeline:	2006 - 2007
Contract Value:	\$1 Million approx.
Contract Type:	Schedule of Rates
Services:	Structural & Mechanical Installation

Client Need

This project was part of the overall strategy to expand production of ore at the Black Star Open Cut Mine in Mount Isa to replace underground mining at Mount Isa Mines that had concluded in 2005. An independent 600 metre overland conveyor was installed to feed the Heavy Medium Plant from the Black Star Crushing Plant. Black Star Mine is one of three mines that feed zinc-lead smelting operations at Xstrata Zinc's Mount Isa Mine. This project was a key component in safeguarding the economic viability of Xstrata Zinc's operations.

Project Description

Mineforce was responsible for the structural and mechanical installation and commissioning, including tie-ins to the Crushing Plant and the Heavy Medium Plant building.

Scope of Work

- Surveying, installation and alignment of tail end section including chute work and skirting
- Pre-assembly, installation and alignment of all surface running modules
- Structural erection of take-up, drive tower and reaction frame
- Mechanical installation and alignment of all drive tower equipment, including drive motor and gearbox, all-bend and take-up pulleys and guides
- Erection of all conveyor trestles and galleries
- Fit out and alignment of all conveyor components

- Dry and wet commissioning

Achievements and Highlights

- Successfully facilitated engineering changes to allow pre-assembly at ground level, resulting in the lifting and installation of 50 metre conveyor trestles in one piece.
- Safely delivered and commissioned the longest and tallest conveyor in the Mount Isa Mines operations.



Plant & Equipment Hire

Cranes

Mineforce Australia operates a fleet of five cranes, tailored to meet our needs in undertaking major construction projects across regional and remote Queensland, including the only Liebherr LR1300 crawler crane based in North Queensland. When not required on Mineforce projects, all cranes are available for hire.

Crane Facilities

- Liebherr LR1300 SX W - 300T Crawler Crane
- Kato NK 450 – 45T Hydraulic Crane
- P&H 670-S – 70T Lattice Boom Crawler Crane

Plant & Equipment

In addition to its heavy lift cranes, Mineforce Australia maintains a large range of construction machinery and equipment most of which is for hire including:

- Boomlifts x 3
- Poly Welders
- Diesel Welders
- Backhoes x 2
- Excavators x 2
- Bobcats x 2
- 4T Telehandler
- Generators x 5
- Heavy Vehicles (tipper, semitrailer)

Detailed information on the range of Mineforce Australia plant and equipment available for hire can be found at www.mineforce.com or call **07 4759 0300** and talk to our plant and equipment hire specialists.





MINEFORCE
Australia

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MINEFORCE

Australia

OFFSHORE FABRICATION



Introduction



Mineforce Australia began operations in China in 2007 to deliver large project steel fabrication requirements to Australian mining and construction industries.

Ongoing research and development of our offshore operations in China has enabled us to generate significant benefits for our clients;
competitive products, to Australian standards, within schedule.

Projects

International standard manufacturing



We have successfully delivered offshore steel fabrication solutions to a range of clients across various projects.



Project: Ernest Henry Mine Headframe
Client: Glencore/Xstrata Ernest Henry Mine
Scope: 412 tonne fabricated steel
Fabrication Timeframe: 120 days



Project: Berth 8 Upgrade
Client: Glencore/Xstrata Port
Scope: 130 tonne fabricated steel
Fabrication Timeframe: 91 days

Projects

International standard manufacturing



Our expertise across a wide range of projects ensures we can assist clients in solving steel fabrication challenges efficiently and effectively.



Project: Berth 8 Upgrade

Client: Glencore/Xstrata Port

Scope: 727 tonne fabricated steel

Fabrication Timeframe: 196 days



Project: No 2 Concentrator Upgrade

Client: Glencore/Xstrata Mount Isa Mine

Scope: 900 tonne fabricated steel

Fabrication Timeframe: 120 days

Projects

International standard manufacturing



We have successfully developed our logistics to be able to supply steel from 12 to 30 days, depending on size and quantity, break bulk or containerized.



Project: Crushing System Upgrade

Client: Glencore/Xstrata George Fisher Mine

Scope: 23 pulleys to suit a 2 metre wide belt and 400 idlers and frames

Fabrication Timeframe: 84 days



Project: Ernest Henry Mine Skyshaft Bin

Client: Glencore/Xstrata Ernest Henry Mine

Scope: 62 tonne fabricated steel

Fabrication Timeframe: 42 days

Benefits

Driven by our clients needs

Our aim is to help our clients achieve their objectives. We have developed our offshore operations significantly to be able to deliver a range of key benefits.

- Ability to model costing around client needs
- Increased flexibility in the range of fabrication and machining services that can be delivered
- Ability to supply pre-assembled modules, meaning increased time efficiencies on site



Operational Excellence

Quality is paramount



Our strength in Quality Assurance is based on our commitment to meeting and exceeding client expectations. Our success in offshore fabrication services is a result of our rigorous quality systems.



- Mineforce have QA staff in the country during fabrication to guarantee and monitor all production activities
- From material procurement to packing, all fabrication products undergo rigorous inspections to ensure quality is maintained at all times
- All overseas alliance companies are accredited in accordance with National GB/T 19001-2000 ISO and ISO 9001-2000 standards

Client Testimonial

We develop strong, mutual relationships



Xstrata Copper NQ – embarked on the conversion of the Ernest Henry Mine to an underground in 2011. A critical element of the project was the fabrication of the Shaft Headframe, which was originally awarded to a Brisbane firm. Fabrication ceased when the Brisbane firm were unable to deliver. Mineforce offered several options for fabrication and in 2012 were awarded the contract for fabrication of the remaining 412 tonnes in their offshore facility. I was extremely impressed with the professionalism demonstrated by Mineforce and the sophistication of their offshore management and processes easily met my expectations. Mineforce constantly kept us informed of the fabrication progress and I was also invited to visit the workshops in China. Safety was upheld throughout the duration of the project, fabricated items were delivered within the timeframe arranged, several costing options were presented to us that had previously not been available and, most impressively, the quality of the product and QA we received was of a very high standard. Mineforce are extremely focused on delivering a quality product and the knowledge within their fabrication business, be it local or offshore, allows them to deliver with the minimum of stress to the customer. I have no hesitation in recommending Mineforce as a very competent and dependable company.

Ken Draffen

*Formerly General Manager Ernest Henry Mine Underground Expansion Project
Xstrata Copper, Mount Isa, Queensland, Australia*

Client Testimonial

We develop strong, mutual relationships



"Congratulations to Mineforce Australia Pty Ltd for the completion of their responsibilities on the Ernest Henry Mine expansion project. Mineforce successfully delivered a range of crucial offshore steel fabrication contracts and performed a number of significant on-site construction contracts. From 'tender acceptance' to 'contract close-out', the Mineforce management team maintained absolute focus on the customers requirements. All pre and post award negotiations were conducted in a cooperative partnership type environment whilst maintaining a high level of professionalism to ensure both parties were able to achieve their respective objectives. This approach resulted in the on-time and within budget delivery of critical contract packages for the project. The offshore steel fabrication quality management deployed by Mineforce ensured the delivery of a first class finished product and I consider this to be a good example of 'best practice'. Mineforce should be very proud of the quality service they can offer to their prospective customers."

Trevor McGregor

*Manager - Contracts & Procurement Xstrata Ernest Henry Mine
Xstrata Copper*

Safety

Our people - our first priority



We work with our offshore partners to achieve and maintain Mineforce's core values to workplace health and safety at all times.

We are proud of our long standing offshore safety record - to date we have no lost time injuries.



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www.mineforce.com



MINEFORCE
Australia



MINEFORCE
Australia

300T Liebherr LR 1300 SXW Crawler Crane



Performance & Reliability



The **300T Liebherr LR 1300 SXW Crawler Crane** is suitable for a multitude of applications ranging from pure lifting jobs to simple clamshell operation.

Excellent performance , high mobility and efficiency are distinguishing factors that emphasize the reliability of Liebherr Crawler Cranes. Below are the characteristics of the LR 1300 SXW that provide customers optimum benefits, including significant time and cost advantages.

1. Low transport weight
2. Rapid & safe self-assembly
3. Optimum lifting capacities in all working areas
4. Flexible, efficient & expandable boom system able to fulfill various requirements onsite
5. Comprehensive operating information
6. Enhanced precision of the control system
7. Optimized drive technology
8. Economical operating costs

Technical Data



300T Liebherr LR 1300 SXW

Capacity

Max. lifting capacity – 300 t

Crane Configurations

Main boom up to 98 m

Main boom up to 83 m with 7 m fixed jib

Counterweights – 176 t

Engine

Liebherr D 9508

V 8 cylinder diesel engine
450 kW at 1900 rpm

Winches

Line pull (1st layer) – 215 kN

Line pull (7th layer) – 150 kN

Load Chart

83 m Main Boom + 7 m Fixed Jib



Ident. no.: 10530651/95738/ Main boom foot: 2821-1
 Slewing range: Limited ° Main boom head: 2821-1
 Foot print: 3 - Blocked crawlers
 Rear counterweight [t]: 124.0
 Carbody counterweight [t]: 52.6

Reeving			1	2	3	4	5	6	7	8
Outreach [m]	Main boom angle [°]	Lift height [m]	Load capacity [t]	Load capacity [t]	Load capacity [t]	Load capacity [t]	Load capacity [t]	Load capacity [t]	Load capacity [t]	Load capacity [t]
83.0 m Main boom, Load fall point 1 - Jib head Jib head (0906-1) 7.0 m Jib										
Offset 30 [°]										
9.2	88.0	92.0			45.0	59.7	74.2	77.7		
10.0	87.7	91.9	15.1	30.1	45.0	59.7	74.2	77.7		
11.0	87.1	91.8	15.1	30.1	45.0	59.7	74.1	77.3		
12.0	86.4	91.7	15.1	30.1	45.0	59.7	73.3	75.2		
13.0	85.8	91.6	15.1	30.1	45.0	59.7	72.7	73.5		
14.0	85.2	91.5	15.1	30.1	45.0	59.7	71.8	72.0		
16.0	83.9	91.2	15.1	30.1	45.0	59.7	68.2	68.4		
18.0	82.6	90.8	15.1	30.1	45.0	59.7	65.6	65.8		
20.0	81.3	90.5	15.1	30.1	44.8	58.4	60.5	60.8		
22.0	80.0	90.0	15.1	30.1	44.5	51.6	54.3	54.7		
24.0	78.7	89.5	15.1	30.1	44.3	47.7	49.3	49.7		
26.0	77.3	89.0	15.1	30.1	44.2	44.7	45.3	45.7		
28.0	76.0	88.4	15.1	29.6	40.6	40.9	41.3	41.7		
30.0	74.7	87.8	15.1	28.9	38.8	37.1	37.6	38.0		
32.0	73.3	87.1	15.1	28.3	33.4	33.9	34.3	34.6		
34.0	72.0	86.4	15.1	27.8	30.5	31.0	31.5	31.8		
36.0	70.6	85.6	15.1	27.4	28.1	28.7	29.1	29.4		
38.0	69.2	84.8	15.1	26.3	26.1	26.7	27.0	27.2		
40.0	67.8	83.9	15.1	24.3	24.3	24.8	24.8	24.8		
42.0	66.4	82.9	15.1	22.5	22.6	22.6	22.6	22.6		
44.0	65.0	81.9	15.0	20.7	20.8	20.8	20.8	20.6		
46.0	63.5	80.8	15.0	18.9	18.8	18.8	18.8	18.8		
48.0	62.0	79.6	15.0	17.2	17.1	17.1	17.1	17.1		
50.0	60.6	78.4	14.9	15.8	15.5	15.5	15.5	15.5		
55.0	56.7	75.0	12.3	12.2	12.1	12.1	12.1	12.1		
60.0	52.6	71.1	9.4	9.4	9.3	9.3	9.3	9.3		
65.0	48.3	66.5	7.0	7.0	6.9	6.9	6.9	6.9		
70.0	43.7	61.2	4.9	4.9	4.8	4.8	4.8	4.8		
75.0	38.5	54.9	3.1	3.0	3.0	3.0	3.0	3.0		
78.0	35.1	50.4	2.1	2.0						

The LR 1300 SXW has a **large range of multifunctional boom/jib systems with exceptional performance data.** Excellent lifting capacity is achieved not only during heavy lifts with the main boom but also when working with the luffing jib.

Combined with a high level of mobility; the **crane is able to travel up and down gradients of up to 20%,** the possibilities of application are greatly enhanced for customers.

Wind Power Competence



The LR 1300 SX(W) model is precisely tailored for the application of wind turbine assembly and servicing.

Narrow-gauge undercarriage: The standard 8 m width across the tracks can be reduced to 4.8 m to provide economical mobility when space is limited. It can also move with long boom systems on narrow roads from site to site, making it especially efficient in wind parks.

Innovative boom system: This crane offers highest capacities & lifting heights required for the assembly of wind turbines.

Two crane winches: Each has a lifting capacity of 15 tonnes & high winch speeds to allow fast lifting & high lifting performance.

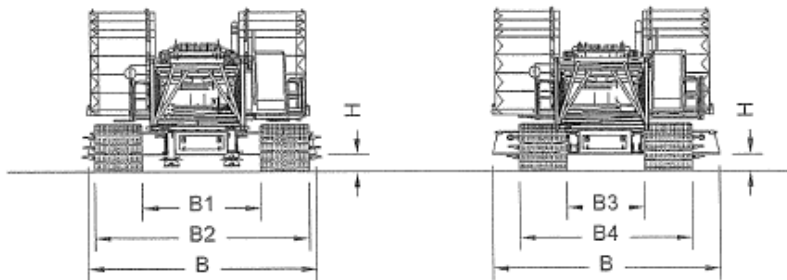
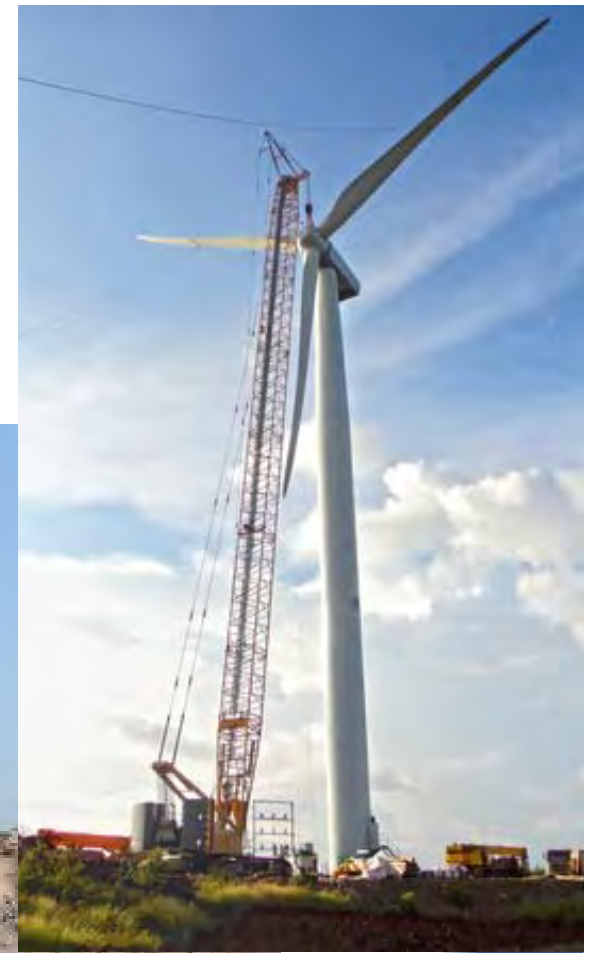


Fig. 9: Dimensions of basic machine with track width adjustment



Efficient Transport

The low weight and innovative compact design of Liebherr crawler cranes enable quick and economical transportation to site.

All equipment can be transported on standard trucks and many of the crane parts have been designed to fit into the main boom sections or into standard containers.



Safety Features

Safety is of utmost importance.

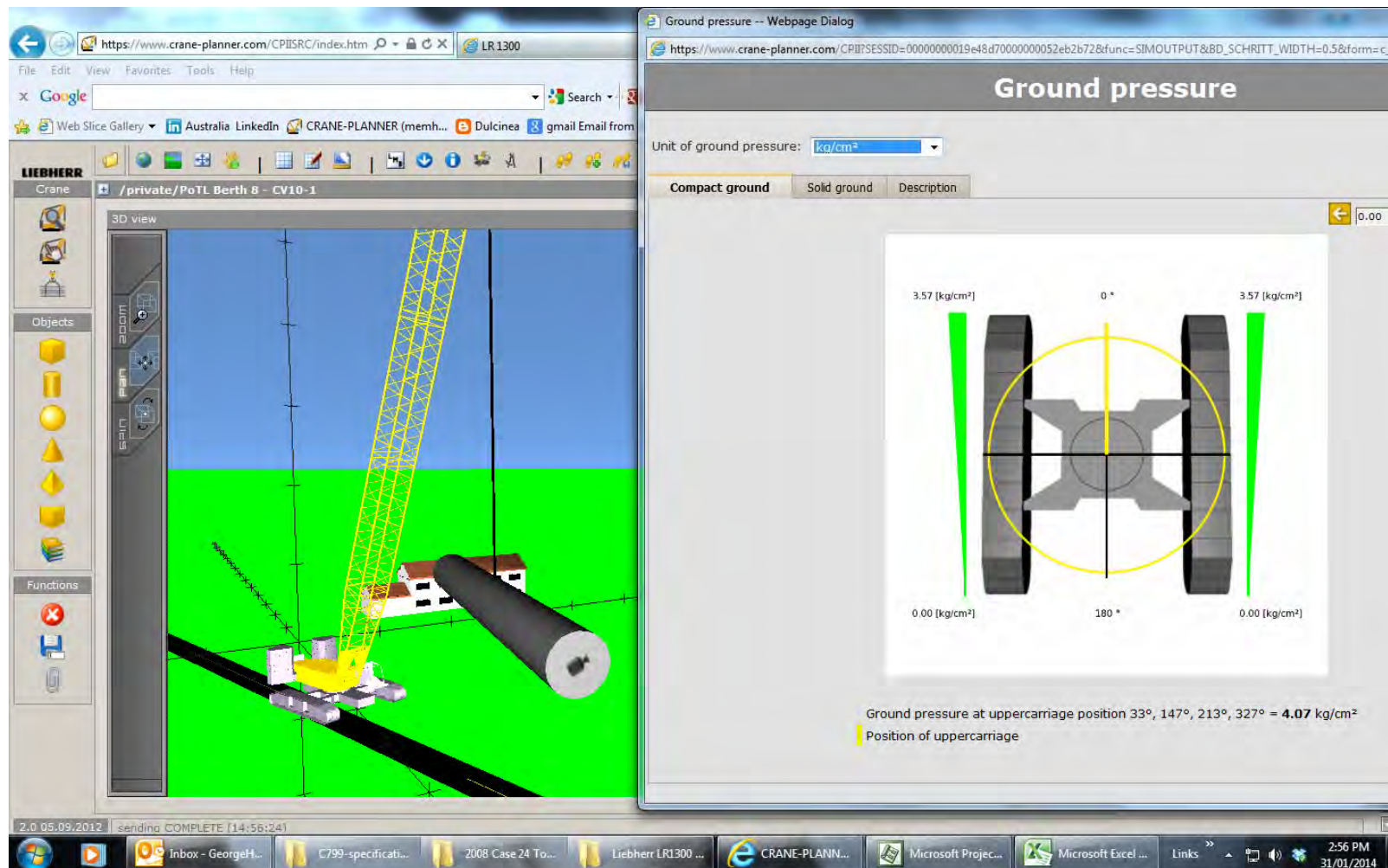
The LR 1300 SXW features extensive safety systems:

- Anti-slip catwalk & steps with full handrail kit on upper carriage for efficient movability
- Unobstructed, all-round glazing cabin for excellent operator visibility of entire working area
- Reverse camera & alarm
- GPS limiter – monitors proximity of power lines & prevents crane from getting too close
- Emergency stop button
- Hand-held fire extinguishers
- Efficient cooling system allows problem-free operation even under severe environmental conditions
- The extensive diagnostic system recognizes and localizes possible errors at an early stage
- Flashing/rotating light
- Two-way radio & aerial
- Floodlights x3



Crane Planner Tool

Unique to the Liebherr crane is the online 'Crane Planner' tool, which enables users to plan, simulate and document lifts more precisely on their computer.



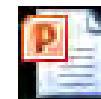
Crane Planner Features



The Liebherr Crane Planner enables users to:

- Load real load charts of their crane by serial number
- Calculate ground pressure for compact and solid ground
- Load precise data due to real LMI online calculation of lifting capacity and ground bearing pressure
- Provide tailor-made documentation of the processes/working steps of the planned job
- Create their own specific job site by adding different objects, structures etc to pre-plan lifts
- Create & print their own PDF to aid briefing of crews and/or client

For more information on Liebherr Crane Planner:



Microsoft
PowerPoint Presentation

Applications





Available Documents



For more information on the LR1300 SXW Liebherr Crane please visit the following websites:

Technical Specifications & Product Brochure

http://www.liebherr.com.au/CR/en-GB/126235.wfw/id-8709-0/measure-metric/tab-6015_1503

Wind Energy Industry Capability

<http://www.windenergie.liebherr.com/en-GB/142959.wfw>

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