



RUSSELL
MINERAL EQUIPMENT

CAPABILITY STATEMENT

RME is built on proven performance.
We observe operation and maintenance practices, join dots and
invent solutions that improve mineral concentrator performance.

RME's Mill Relining System delivers higher
production rates, shorter shutdowns and safer
working environments.

fast, reliable, safe

rmeGlobal.com



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How RME began

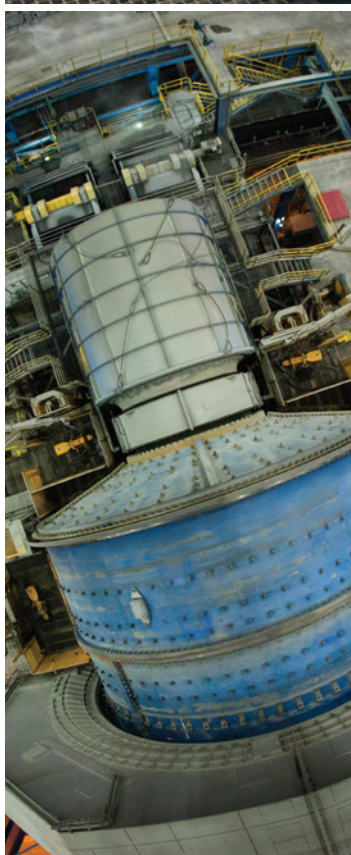
In the early 1980s, mechanical engineer John Russell was Officer in Charge of Maintenance in the Mount Isa Mines (MIM) Copper Concentrator, at the time a crushing, rod milling and ball milling comminution plant. This Copper Concentrator treated 5 million tonnes of high-grade, underground sourced, chalcopyrite ore per year.

During this time, John observed the relationship between grinding mill liner life and annual concentrator through-put. Grinding mills are massive cylindrical vessels that rotate and tumble large lumps of ore and break them into smaller particles, a process necessary for separating mineralization from barren host rock. Heavy liners are attached to the inside of each mill to protect it from damage and wear. The liners are replaced on a regular basis. Mill Relining was an intensely manual activity, dangerous and very time consuming.

The end of liner life dictated concentrator shut down dates or schedules. The time taken to replace mill liners dictated the length of the entire shut-down.

The vision was to mechanise the entire mill relining process, shorten reline times, shorten overall shut-down times, increase plant utilization and increase mine site profitability. All this was to be achieved while concurrently improving the safety of the working environment, and by a large margin.

Russell Mineral Equipment (RME) was established in 1985-86, and its logo was "RME" inside a grinding mill cross-section graphic.



In 1990, RME consisted of a team of three: two mechanical engineers and a draftsman (left to right) – Peter Rubie, John Russell, Doug Neild.



A History of Engineering Innovation

The RME Mill Relining System began with the RUSSELL 6 MRM

RME's first Mill Relining Machine (MRM), a RUSSELL 6, was commissioned in August 1990 by MIM for their Lead Zinc Concentrator Rod Mills. As a direct result of this RUSSELL 6, rod mill relining times dropped from 44 hours to 24 hours, two 12 hour shifts.

RME then produced a short video to promote this first RUSSELL 6. This film impressed Western Mining Corporation (WMC) engineers and RME was chosen to design and supply a RUSSELL MRMs to the new Leinster Nickel Project in Western Australia.

Commissioned in 1992, this huge RUSSELL MRM continues to service Leinster's 32-foot diameter SAG Mill to this day. The Leinster RUSSELL 7 was the first, large-capacity, liner-placement MRM ever attempted. RME understands that it was the largest capacity 'liner handler' of any type in the world at that time, capable of lifting 2500 kg/5500 lb. liners.

Contract relining crews, unfamiliar with the concept of liner placement, were initially reluctant to use the RUSSELL 7 MRM to its full potential. After all, RME was promising that the RUSSELL 7 could lift and precisely place liners weighing up to 2500 kg in any position inside the mill. The *unbreakability* of the RUSSELL 7 proved to be a revelation, and with ever-growing confidence in the reliability of the RUSSELL 7, these relining crews began to experiment with liner placement, never looking back.

THUNDERBOLT Recoilless Hammer enhances the RME Mill Relining System

The invention of the RME THUNDERBOLT Recoilless Hammer, first released in 1997, represented a major advance in shortening overall shut-down times.

The combination of fast, reliable, safe worn liner removal by THUNDERBOLT, followed by fast, reliable safe new liner placement by RUSSELL 7 MRM, placed in the hands of mill relining crews the tools necessary to slash traditional grinding mill relining down-time.

In 1999, the Escondida Copper Mine in Chile commissioned a larger THUNDERBOLT Recoilless Hammer, now known as the THUNDERBOLT 1500. The toughest SAG mill discharge-end bolts yield to the relentless force delivered by this mighty Hammer.

By year 2000, RUSSELL 7 liner placement MRM had become the industry standard and liner placement had become the common industry practice in large grinding mills. The combination of RME's THUNDERBOLT Recoilless Hammer and RME's RUSSELL 7 MRM was the foundation of the RUSSELL MRM.

New RME Mill Relining System technologies combine to make mill relining fast, reliable and safe

RME's Mill Relining System had effectively halved pre-RME mill relining times. This brought to the attention of RME engineers other work flows around the mill relining process, which compromised overall mill relining performance. In response, RME developed a wide range of powered Feed Chute Bases and powered Feed Chute Transporters that slashed feed chute removal times whilst simultaneously eliminating some previously dangerous work practices.





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A Culture of Engineering Innovation

Time and motion studies employed to discover new opportunities for the RUSSELL MRM

In 2004, RME engaged the services of ex-Escondida Concentrator Manager, Stephen Kittel, a metallurgist who undertook detailed time and motion studies of RME's Mill Relining System in action at a range of sites world-wide. These studies revealed new opportunities for RME's Mill Relining System and for our Customers.

Final placement of new liners, particularly the difficult-to-place, deep, Discharge End liners such as pulp lifters, proved to be operator-skill dependent, and operator skill varied enormously. RME addressed this in two ways:

- The technical solution was the [RUSSELL 8 MRM](#) development, with the additional (8th) axis facilitating direct insertion of these difficult liners.
- The operator skill problem was addressed by working with Technical and Further Education (TAFE) Queensland, a registered training organisation, to develop specific Certified Operator Courses:
 - 10186NAT – Course in [Operate a Mill Reline Machine](#) teaches the best-practice operation of RME MRMs including RUSSELL 7, RUSSELL 8 and RUSSELL TWIN MRMs and RME Mill Liner Handlers
 - 10187NAT – Course in [Operate the Recoilless THUNDERBOLT Hammer](#) teaches the best-practice operation of THUNDERBOLT 250, THUNDERBOLT 500, THUNDERBOLT 750 and THUNDERBOLT 1500 Recoilless Hammers
- The ultimate iteration of the RUSSELL 8 MRM, factory commissioned in 2013, has a capacity of 8000 kg. Several RUSSELL 8 MRMs of this same capacity have since been manufactured and are the largest MRMs in the world.

Further advances to the RME Mill Relining System

Kittel's time and motion studies also exposed the time taken to pick up worn liners from the mill charge after they had been dislodged from the mill shell. This insight led to the development of the [O-ZONE Worn Liner Lifting Tool range](#). While one minute saved per liner doesn't sound much, in a large Ball Mill featuring more than 300 liners, this represents a time saving of five hours, a result proven on the first use of the O-ZONE tools.

The third insight from the Kittel time and motion studies was the time taken to move the THUNDERBOLT from liner bolt to liner bolt. The original idea was a robotic device known to RME as THUNDERBOLT STORMPATH. While this idea didn't proceed, it initially precipitated the invention of the [THUNDERBOLT Moil Axis Guide device](#), known as the T-MAG, and ultimately to RME's Elevating Platforms, acknowledged as a grinding mill relining crew must.

"It is so much easier, we just take the platforms to the row of bolts we want to work on"

"We eliminated about half of the normal amount of required mill inchings"

"I don't want to work on a mill without elevating platforms from now on"

– Mill Relining Crew.

RME Research and Development

Creative problem solving is part of the cultural DNA of RME

In the early 1980s, John Russell clearly recognised the tremendous leverage promised by mechanising the grinding mill relining process. Every element of the RME Mill Relining System required individual R&D projects. Each element has then been subjected to a process of constant improvement spanning more than 30 years. This process of constant improvement never ends.

While all RME Mill Relining Systems are customised to each individual mill, RME also enjoys completing one or two special machines per year, machine systems the likes of which previously never existed. For example, RME designed and built three pecan nut tree pruning machines for Stahmann Farms. These pruning machines materialised Dean Stahmann's revolutionary pecan nut growing strategy, yielding 50% more nuts per tree than anywhere else in the world.

The courage and skill required to design and manufacture a complex, first-of-type machine, maintains a fit and agile RME team capable of confidently developing significant advances with our Mill Relining System. Examples of significant Mill Relining System advances include the [RUSSELL 8 8000 kg-capacity MRM](#), [RUSSELL TWIN MRMs](#), the [RUSSELL 6V VertiMRMs](#) of 8150 kg-capacity, [THUNDERBOLT SKYWAY](#), [INSIDEOUT Technology](#) and [RME AutoMotion](#).

RME groups its R&D activities into four families:

- [Continuous process improvement](#) in the manufacture of the existing RME Mill Relining System. The application of the submerged arc welding process to welding RME's MRMs' inner and outer beams is an example of this.
- [Continuous product improvement](#) of RME's Mill Relining System. A example of this is the liner rollover function on the 8,000 kg capacity RUSSELL MRM.
- [New product development](#) for inclusion in the RME Mill Relining System such as the suite of RUSSELL Safety Products designed to improve levels of safety for mill reliners, as well as RME AutoMotion, to facilitate automation of the machine's gross movements.
- ["Blue Sky" projects](#), often in collaboration with universities, research institutes and mining companies' R&D divisions. An example of this type of project is the Rotary Breakage Tester for quantifying mineral ore properties, in conjunction with the Julius Kruitschnitt Mineral Research Centre (JKMRC) of the University of Queensland.





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Success necessitates expansion

In April 2009, RME completed new workshops on Hursley Road, Toowoomba, Australia. This purpose-built facility provided RME with all the space and resources necessary to manufacture our Mill Relining System technologies and to conduct ongoing product development. The office section of RME's Hursley Road headquarters was completed in January 2010. The centre-piece of an imposing foyer is RME's very first RUSSELL MRM, supplied to MIM in 1990.

Beautifully reconditioned by RME's workshop team, this first RUSSELL MRM is completely operational and now graces the black granite-clad reception area of this new home.

In order to support RME's ever-growing fleet of Mill Relining Systems, RME has established wholly-owned Regional Service Centres in Toowoomba, Perth, Antofagasta, Santiago, Salt Lake City, Arizona, Kamloops, Montreal, Johannesburg, Accra and Panama City.

In 2012, a purpose-built Customer Support and Training Centre was completed at RME Hursley Rd headquarters. More recently, a Testing and Training Facility was added in 2017. This Testing and Training Facility includes a RUSSELL MRM, mill shell and THUNDERBOLT SKYWAY prototype and is used by RME's R&D engineers for new product development and testing, as well as for training relining crews in best practice use of the RME Mill Relining System.

Maximising concentrator operations through RME Full Service and RME MILL RELINING

Our Customers can be assured of our commitment to operational support. RME guarantees deep Technical Support from the Engineers who design RME Mill Relining System Technologies, through our unique Asset Support Platform, through to the Customer Support Technicians who deliver the services to our mine site Customers.

The realization of the performance potential of every RME Mill Relining System requires a skilled Mill Relining Crew. RME's vision for providing a Full Service model to our Customers was a logical step in RME's commitment to delivering on its Mission Statement, to **visibly, defensibly and sustainably improve our Customers' concentrator performance**. This Full Service vision materialised in 2012 with the establishment of **RME MILL RELINING**, dedicated teams of mill relining specialists who combine a great depth of mill relining experience with expertise in the application of all RME Mill Relining System technologies.

RME MILL RELINING crews are comprised of RME's skilled Customer Support Technicians, mill relining personnel, engineers and management.

When the Grinding Circuit is stopped for necessary maintenance, the cash flow of the entire mine site effectively ceases. Almost invariably, the AG, SAG and Ball Mill liner life dictates the shut-down dates of the concentrator. Through RME Full Service, relining no longer represents the critical path. **We deliver mill availability.**

Safety Integrity

Rapid grinding mill liner replacement has **peculiar economic leverage**. Faster relines promise shorter maintenance shut-downs, greater concentrator utilisation and, ultimately, significantly greater mine site profits.

Grinding mill liner replacement is also the most dangerous maintenance task in mineral concentrators.

Since inception in 1985, RME's goal has been to provide our Customers with all the benefits of fast, reliable and safe relining while simultaneously eliminating the hazards of this critical maintenance task. From our first RUSSELL MRM in 1990, **all of our MRMs have included a multitude of mechanical, hydraulic, electric and operational features which underpin reliability and machine safety**. RME's complete Mill Relining System is underpinned by this **uncompromising focus on safety integrity**.

A suite of grinding mill relining safety technologies and processes has been developed to deliver vastly improved levels of safety to reliners and, importantly, peace of mind to the concentrator personnel responsible for the safety of contract relining crews.

RUSSELL Safety Products reduce the risk of injury to relining personnel working inside the hazardous mill environment. Hazards include but are not limited to:

- Confined spaces
- Close proximity to heavy machinery
- Suspended loads
- Uneven working surfaces
- High humidity
- Working at heights
- Poor communication
- Poor visibility
- Falling objects

The RUSSELL Safety range includes:

RUSSELL RESCUE RAISE, an independent rescue jib and stretcher system, designed to enable fast and easy deployment.

RUSSELL MILLBRITE In-Mill Lighting, for unparalleled in-mill visibility lighting to ensure relining personnel are more visible, either by direct line-of-sight or by camera.

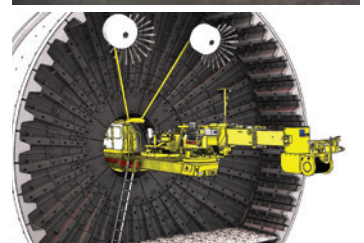
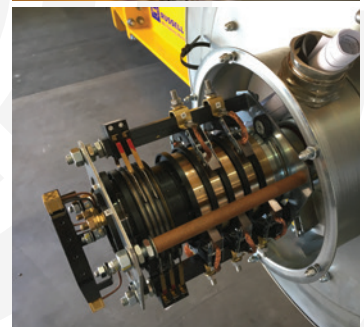
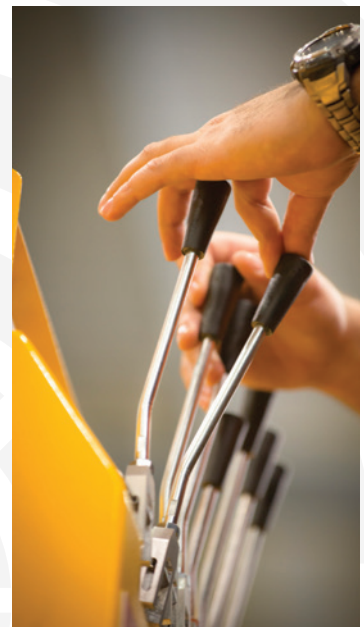
RME EYE Visibility Camera System, a 'visibility aid' camera and screen system which provides the operator with clear images of other relining personnel in the mill.

RUSSELL PROXIMITY, a proximity detection system for use during mill relining. RUSSELL PROXIMITY's machine control system integrates with the controller and responds to the sensor alert by slowing or stopping the MRM when a person enters the warning and danger zones.

The **RUSSELL Mill Surveillance** camera system which provides visibility, without the requirement for mill access. This 360 degree High Definition IP camera is positioned high above the MRM on the RUSSELL Safety Portal, providing 360 degree vision of the inside of the mill.

RUSSELL HEIGHT SAFETY, a safe travel aid, secures personnel against falling from heights during this transition between inside and outside the mill.

RUSSELL CHARGE ACCESS which comprise a range of solutions for personnel to transition from the RUSSELL MRM's beam to the surface of the mill charge.





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RME Service

RME Service delivers intelligent, superior, authorised support of RME Mill Relining Systems around the world. It's worth the investment. RME is the world leader in the design, manufacture, supply and servicing of mill relining technologies – since 1985.

This pedigree, with our continuous improvement culture, our engineering and technological design excellence and our people who are committed to improving your concentrator performance, combine to define the RME Difference.

What matters to our operators is mill availability. Mill relining is on the critical path of processing plant shutdowns. If the shutdown can be shortened or if it's extended by equipment breakdowns, mill availability and production feels a direct impact. RME's Mill Relining System is key to the success of the shutdown. When your RME Mill Relining System is maintained and operated correctly, mill availability is increased.

RME's Mill Relining Systems are designed to operate in difficult environments. These environments pose a risk to the success of the shutdown and to the safety of personnel who are working in confined spaces, with poor lighting and on uneven surfaces.



"Your Customer Support Technician's engagement and 'zero harm' attitude, as well as high regard for our site's processes, was very refreshing. Certainly the kind of contractor we like to engage with"

Production Superintendent,
Copper and Gold Mine,
New South Wales,
Australia

"I'd like to say what an excellent technician the RME CST was. It was an absolute pleasure having him on site, very professional, helpful and productive. What I liked about him was that he wasn't afraid to make recommendations unlike a lot of "new age" contractors who won't make a suggestion, being fearful of possible repercussions."

Processing Manager, Gold Mine, Papua New Guinea

"RME's Customer Support Technician was an absolute pleasure to work with and I was very impressed with how knowledgeable he was. His passion for the machine really shone through when he spoke."

Commissioning Manager, Zinc-Lead-Silver Mine, Queensland, Australia

The RME Difference	RME SERVICE	OTHERS
Genuine OEM performance upgrades to the RME Mill Relining System are only available through RME Customer Support Technicians (CSTs).	✓	X
Safety upgrades are part of RME's continuous improvement loop throughout our global network of engineers and technicians.	✓	X
RME's global experience from maintaining hundreds of RME Mill Relining Systems world-wide places a wealth of knowledge into your hands.	✓	X
OEM spares allow RME to truly stand behind our globally recognised RME Mill Relining System, regardless of its age.	✓	X
Access to Original Equipment Manufacturer (OEM) Engineers provides intimate knowledge of your RME Mill Relining System equipment design and function.	✓	X
Certification of welding repairs are delivered through our Technicians' access to OEM design and manufacturing records and our award-winning Fabrication team.	✓	X
Updated Manuals are part of the service offered by our team of RME Engineering Technical Writers, keeping you and your operators informed with the latest technical knowledge.	✓	X
24/7 Global Hotline – for those emergencies which don't happen during business hours, RME provides global asset support around the clock across 8 different time zones.	✓	X
Service Bulletins provide OEM information about updates to RME's Service and Technologies.	✓	X
Asset Support Platform (ASP) is the foundational service system holding data about RME Mill Relining Systems, their wear rates and service schedules.	✓	X
Appropriate tooling, materials and latest software to ensure efficient and correct OEM maintenance.	✓	X
Warranties cover all on-site work by our Customer Support Technicians (CSTs) and Extended Warranties apply for many of our Service Level Agreement clients.	✓	X
Sourcing of approved spare parts by our team of Customer Support Specialists (CSSs) means that delays and downtime are minimised.	✓	X
Hire equipment is available through RME Service for trialling new technologies or for the convenience of paying as you go.	✓	X
Preventative Maintenance Plans are available for all assets and are based on our experience of wear rates across the world. These plans provide a schedule of timings and costings to ensure the ongoing safety of your assets.	✓	X
Technician Site Familiarity allows for stronger relationships with onsite personnel, reduced induction costs and in some cases quicker analysis of an issue. RME has a proven history of long term employment and a large team of technicians.	✓	X
Local presence in the world's biggest mining regions ensures efficient service delivery, reducing downtime.	✓	?
Our dedicated, on-site Technicians are continually updated with current OEM knowledge to ensure the smooth running of your RME Mill Relining System technologies.	✓	?
Superior Hydraulic, Electrical and Mechanical Experience to provide timely, intelligent diagnostics reducing mill down-time.	✓	?
Commitment to Safe Work Procedures means that your site safety requirements will be respected at all times.	✓	?
Commitment to detail and quality of workmanship means that you will have issues resolved every time, the first time.	✓	?
ISO Accreditation is part of RME's commitment to the delivery of the world's best mill relining technologies, your asset support and to improving your concentrator performance.	✓	?
Responsive Spare Parts delivery and implementation, to preserve your productivity.	✓	?
Stock and Spares Auditing of your inventory for your convenience, delivered through our CSS team, preventing delays and over-ordering.	✓	?



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New world first performance technologies

Simultaneous to the development of the RUSSELL SAFETY Products and processes has been RME's development of a new range of pioneering performance technologies.

These new technologies include:

THUNDERBOLT SKYWAY elevating platform and semi-automated THUNDERBOLT Recoilless Hammers suspension and guidance system.

INSIDEOUT Technology, to facilitate relining without personnel inside the dangerous environment of the mill.

Single Piece Flow - relining methodology, RME AutoMotion and RUSSELL RELINE INTELLIGENCE which propose an alternative reline process using methods long proven in manufacturing, to increase throughput and quality.

THUNDERBOLT SKYWAY

SKYWAY's greatest benefit is that it provides a technology platform external to the mill, equivalent to the RUSSELL MRM technology platform on the inside of the mill. It is the creation of these two foundational platforms that have made possible the emergence of all other new RME Technologies.

RME's Mission Statement is to visibly, defensibly and sustainably increase our Customers' concentrator performance. Our relentless pursuit to satisfy our Mission Statement has led RME to envisage the development of 'advanced suspension' and 'advanced guidance' systems for RME's THUNDERBOLT Recoilless Hammers.

Our vision for THUNDERBOLT advanced guidance and suspension has been materialised in THUNDERBOLT SKYWAY, which provides all the benefits of RUSSELL Elevating Platforms plus semi-automated bolt targeting, bolt acquisition and bolt/liner removal.

THUNDERBOLT SKYWAY applies all RUSSELL Elevating Platforms benefits to enable Mill Relining Crew and THUNDERBOLT Recoilless Hammers access to more (higher) rows of liner bolts. **SKYWAY Technology also delivers the advantages of semi-automated THUNDERBOLT Recoilless Hammers operation to reduce reline crew size and to streamline relining performance, every time.**

THUNDERBOLT SKYWAY is a fully mechanised THUNDERBOLT Recoilless Hammer guidance and firing control system, representing the fastest method ever devised for liner bolt and worn liner removal.

INSIDEOUT Technology

INSIDEOUT is the name given to a suite of new RME technologies designed to facilitate **relining without any personnel inside the mill**. This technology suite falls into two main groupings, INSIDEOUT Liner Placement and INSIDEOUT Liner Removal.

By incorporating **specialised communications headsets** and **RUSSELL ECLIPSE Liner Alignment Sensor System**, INSIDEOUT Placement removes the need for reliners to be performing new liner alignment and bolt insertion tasks inside the mill. **BOLTBOSS** facilitates liner bolt retention and fastening from outside the mill.

INSIDEOUT Removal uses **RME VU 3D headset** and gimbal to enable control of the RUSSELL MRM from outside the mill, establishing a situation whereby worn liners can be neatly collected directly from the mill shell rather than from a jumbled, knocked-in, heaped assortment on the charge.



Training

Mechanised Relining training and Registered Operators courses

RME has developed Mechanised Relining training which complements and works with RME's two existing and well-supported Registered Training courses. These courses provide thorough training and competency assessment in the effective operation of THUNDERBOLT Recoilless Hammers and RUSSELL MRMs.

The purpose of RME Mechanised Relining training is to improve mill relining safety for all mill relining crew members who are working with each other and in conjunction with a RUSSELL MRM, within the confined space inside the mill and with other RME Mill Relining System technologies on the outside of the mill.

The method for increasing safety through RME Mechanised Relining training, is to provide all mill relining crews, including RME crews and non-RME crews, with deep and comprehensive understanding of how to safely and competently participate in a mill reline. RME's Mechanised Relining training is currently deployed at RME's Testing and Training Facility at RME's Australian headquarters, and on site around the world.

Accredited courses delivered in partnership with TAFE Queensland (RTO 0275):

- **10186NAT** – Course in Operate a Mill Reline Machine teaches the best-practice operation of RME MRMs including RUSSELL 7, RUSSELL 8 and RUSSELL TWIN MRMs and RME Mill Liner Handlers
- **10187NAT** – Course in Operate the Recoilless THUNDERBOLT Hammer teaches the best-practice operation of THUNDERBOLT 250, THUNDERBOLT 500, THUNDERBOLT 750 and THUNDERBOLT 1500 Recoilless Hammers

Systems and Accreditations

LEAN Manufacturing

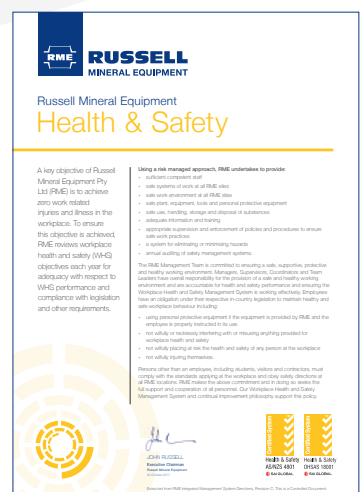
RME implemented the LEAN Manufacturing philosophy in 2009, and in doing so adopted world's best manufacturing practice. This enhanced design and production system, helps RME to deliver ever greater value for our Customers.

ISO Accreditations

In 2010, RME was certified a Quality Management Company under the internationally recognised ISO 9001:2008 quality standard for the provision of the design, production, Customer support and service of specialist mining and mineral processing equipment.

RME has also attained ISO 14001 Environmental Management, with the main elements of this accreditation defining RME's responsibility and obligations towards the environment, applicable regulations and external party expectations.

ISO 18001 Health and Safety Management and AS/NZS4801 accreditations have also been attained. These two standards relate to RME's provision of a safe work environment for all employees and that these safety compliances extend to RME's Customers in terms of safe use and harm provision advice for the operation of all RME Mill Relining System equipment.



Our People and our Culture

RME's Customer Support Platform – caring for our Customers and our Customers' assets

RME understands the opportunities and responsibilities of all of our Customers. Our Customer Service personnel are dedicated to meeting each of our Customers' needs, from the Pre-feasibility Plant Design stage, through Mill Relining System supply, to ongoing operational support and maintenance of the Mill Relining System throughout the life of the mine.

RME's Customer Support personnel include:

- Business Development Managers
- Key Account Managers
- Service Account Managers
- Regional Service Managers
- RME Mill Relining System Training Officers
- Customer Support Technicians

If a brand doesn't live on the inside, it can't thrive on the outside

RME personnel and our Customers come to understand that RME is defined and governed by a culture which sets RME apart. This culture gives RME a competitive advantage and delivers unequalled value to our Customers and employees alike.

RME's unique culture was born in our early, formative days and we place great importance on the integrity and maintenance of this culture. It provides sustainability to our Customers and to our cohort of employees, many of whom have been with the company long term.

Below are some of the elements that contribute to RME's culture and our sustainability. All RME teams regularly discuss how these cultural elements translate to an individual's behaviour in their function within the company.

We are ethical – snowy white.

We are innovative – there is always a solution that is right for the Customer, we take time to discover it.

We are strong but easy to deal with.

We are Customer centric – we listen – we do what we say.

We strive to be best in the world in all business activities in our markets.

What we make conforms to the highest quality standards. Quality is never compromised and takes priority over delivery and profitability. We aim to make our products visually beautiful. The beauty of our work is not only skin deep.

We don't give lip service to safety – what we say is what we do.

We are characterised by cross functional respect – we don't tolerate a 'them and us' mentality.

We believe an employee's work environment contributes to their creativity and attitude, so our facilities are of the same quality as our people, our service and our product. Likewise when an RME employee works offsite he/she creates a work environment that reflects the same quality.

We have a no blame culture when staff take responsibility for mistakes, therefore staff should never fear making mistakes – only keeping secrets.

We constantly challenge the status quo – we are never satisfied.

We believe that 'not one of us is as smart as all of us'. We believe that the best results are achieved through cross functional collaboration – we celebrate brilliant people who are team players.

We like to laugh – a lot.

Awards and Accomplishments

RME's contribution to the mineral processing industry, through its innovations in Grinding Mill relining, has been acknowledged not only through global market success but also through the receipt of many awards and accolades by industry, government, academic and research institutions since 1994.

RME is the two-time winner of the Engineers Australia Excellence Award and proud recipient of the BHP Australian Steel Award in 1997. Other notable awards are detailed below:

The Premier of Queensland's Export Awards – Small to Medium Manufacturer of the Year (2000)

Centenary Medal – Awarded to John Russell (2001)

Southern Queensland Export Awards – Large Manufacturer (2001)

Southern Queensland Exporter of the Year Awards – Exporter of the Year (2001)

The Premier of Queensland's Export Awards – Regional Exporter of the Year (2001)

Australian Export Awards – Regional Exporter of the Year (2001)

Engineers Australia – WBS Screen (2004)

Southern Queensland Export Awards – Small to Medium Manufacturer Award (2005)

Southern Queensland Export Awards – Exporter of the Year (2005)

The Premier of Queensland's Export Awards – Small to Medium Manufacturer Award (2005)

The Canadian Mineral Processors' Art MacPherson Comminution Award (2007)

Australian Export Awards – Regional Exporter of the Year Award (2007)

Australian Export Awards – Large Advanced Manufacturer (2008)

Australian Export Awards – Hall of Fame Inductee (2009)

Australian-Latin American Business Council (ALABC) Business Award

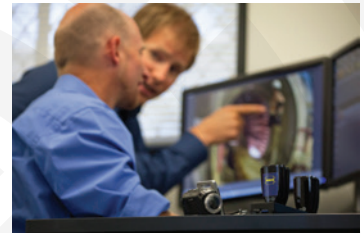
Toowoomba Chamber of Commerce – Hall of Fame Award – in recognition of a positive enduring contribution to the City's prosperity

Honorary Degree of Doctor of Engineering for the University of Southern Queensland – awarded to John Russell

AIEx Export Hero Award (2011)

Dr John Russell awarded Outstanding Alumni of the Year, Science and Engineering faculty, Queensland University of Technology (QUT) (2013)

Dr John Russell awarded the AUSIMM MINERAL INDUSTRY TECHNIQUE AWARD (MITA) in recognition of contribution to the safety and efficiency of Grinding Mill relines (2014)



John Russell, Peter Rubie and Doug Neild, November 2013.

Collaborative Leadership

John Russell's leadership of RME has been a constant feature since he founded the company in 1985. An equally constant feature has been his collaboration with RME personnel throughout all areas and regions of the organisation. Acknowledging that leaders bring their unique strengths, but also their weaknesses, to their roles, John Russell has placed an emphasis on gathering the counsel of others. This collaborative style has ensured diversity of thought and protection from stagnation throughout the company's history. Executive Director Dr Peter Rubie, RME's Chief Engineer for over two decades, similarly enjoyed gathering diverse inputs during his tenure as RME's General Manager (2013-2016) and also through his extensive engineering leadership.

Collaborative leadership as a style works successfully for RME due to the company's identification with the Mittlestand company ethos and disposition. Mittlestand companies are a signature of the German economy, and have historically been a contributor to this country's economic strength, representing medium-sized companies and viewed as an economic unit. RME identifies with many of the quantitative and qualitative features common to this type of company, including family ownership or a family-like corporate culture, long-term focus, lean hierarchies and investment into the workforce in order to retain institutional knowledge and foster sustainability. Collaborative leadership places emphasis on the professional development and career satisfaction of company personnel in order to build succession into the workforce, consistent with the generational continuity trait of successful Mittlestand companies.

Engineering at RME prospers from the career diversity of the members of this Area of Expertise; it's another function within RME that derives dynamism through collaborative leadership.

RME's Leadership Committee brings together a small number of key RME executives who share RME's leadership function with John Russell. They act as a CEO team, reporting to RME's Board of Directors and will include new members of RME's Group and General Management cohort into the future.



Delivering innovation to the world





RUSSELL
MINERAL EQUIPMENT



Dr (Hon) John Russell

Founder, Executive Chairman and Managing Director

Dr John Russell is the Founder and Managing Director of RME which he started from his home office in 1985. Through determined innovation, a single-minded vision to make the difficult job of mill relining easier, faster and safer, John has shaped RME to become the world's leading designer and manufacturer of grinding mill relining technologies. Extraordinary engineering and a highly-skilled workforce community, have been central to John's success.

John's mission to mechanise the mill relining process began five years' earlier in 1980 as a graduate mechanical engineer at Mount Isa Mines (MIM) where he observed first-hand the relationship between grinding mill liner life, liner exchange rates, the impact on plant availability, production and ultimately mine site profitability.

In 1985 John established Russell Engineering, offering design and consulting services to the mining industry, including MIM. Early projects revolved around the ISA SIZER vibrating screen which John had invented, manufactured, patented and commissioned whilst at MIM. The design itself was cutting-edge and proved to significantly enhance metallurgical performance, eliminating the maintenance and reliability issues encountered by the technology that had been used to date.

Crucially around the same time, Russell Engineering was granted the manufacturing license for the ISA SIZER – an event that marked the birth of RME and the transition from Russell Engineering's limited design and consulting offering, to RME's full service offering, including design, manufacture and supply of RME's mineral processing equipment.

In 1990 RME won their first MRM design-and-build contract with MIM. This RUSSELL MRM (MRM) #1 was commissioned late 1990. One year later, RME was awarded a second contract at the Leinster Mill in Western Australia by Western Mining Corporation (WMC) – strategically important because it was the largest capacity liner handler and first large liner placement machine in the world, marking the beginning of RME's recognition and presence on the world stage. In 1991 WMC placed an order for RUSSELL MRM #3 for Olympic Dam in South Australia, and thereafter orders dramatically accelerated with a new machine contract won every week from November 1992.

In 1996, with the support and dedication of Peter Rubie, who joined forces with John back in 1990, in the role of Chief Engineer, John's focus could turn to management of the fast-growing RME business. In the years since, revenue has grown more than 20-fold and personnel head count is around 400 staff world-wide today. A state-of-the-art engineering, manufacturing, assembly, international training and business administration facility was opened in Toowoomba in 2009. International offices were established to service RME's growing global Customer base, starting with RME South America in 2004, RME North America in 2009 and RME's South Africa in 2012, followed by the incorporation of RME Canada and RME United Kingdom in 2013, and RME Panama in 2018.

Under John's direction and influence, RME has relentlessly continued to pioneer innovations and deliver new and safer technology to mill relines and the wider comminution industry, even during the mining investment downturn. This includes the THUNDERBOLT Recoilless Hammers in 1997, the RUSSELL TWIN in 2007, a pair of two completely-independent MRMs that operate simultaneously, and recently, RME INSIDEOUT Technology and THUNDERBOLT SKYWAY, advanced mill relining technologies which are the result of two plus years' dedicated R&D investment by RME's engineers and Technology Group.

John has authored, delivered and published numerous conference papers from 1989 through to present day, including SAG 2001 Conference, Vancouver, Canada, 2006 MAPLA Conference, Chile and 2008 Canadian Mineral Processors, Ottawa, Canada. John was awarded a Centenary Medal for service to industry, the Canadian Mineral Processors Art McPherson Medal for Contributions to Comminution and the Warren Centre Innovation Hero Medal. He has also contributed to various State and Federal Government initiatives. In 2008, John was awarded an Honorary Doctor of Engineering from the University of Southern Queensland.



Continuous monitoring of gas levels within the confined space of the Mill to ensure a safe reline.



Dr Peter Rubie

Executive Director

Peter Rubie joined John Russell and his company, RME, in 1989 as the company's third employee. Right from the start, Peter proved instrumental in the design and development of the technology suite known as the RME Mill Relining System, including working on RME's first MRM (MRM #1), commissioned in late 1990.

Named inventor or co-inventor on all RME patents, Peter is also the creator of RME's highly-innovative simulation technology known as MILL RELINE DIRECTOR, or MRD – an accomplishment which led to his recognition by Engineers Australia as one of Australia's most innovative engineers. MRD provides RME's Customers with actionable

insight into the behaviours and performance of a mill reline in order to quantify their contribution to reline time reduction and to develop optimisation strategies.

Peter has held the role of Chief Engineer for most of his long-standing career at RME as well as occupying a number of senior management functions during his tenure.

Between 2012 and 2016, Peter led RME's global operations as Group General Manager and oversaw the combined efforts of RME's Group Management team in navigating RME's successful response to the decline in mining capital investment following the mining construction boom. This same team securely positioned RME for future growth with RME's *Building Our Own Boom* strategic program of initiatives.

During this critical period, Peter ensured that RME's R&D program continued, establishing RME's Technology Group with the blue-sky vision that one day, the processes and technologies for relining would be performed completely, and safely, from outside the hazardous mill environment.

This commitment to safety and performance optimisation for mineral processing operations has resulted in the recent launch of RME's world-first technology capabilities known as INSIDEOUT Technology and THUNDERBOLT SKYWAY. These technologies, as well the world-first RUSSELL MRM equipped with RME AutoMotion, promise to deliver a step change in mill reline safety and performance. With RME's engineering leadership team, Peter also continues to drive the perpetual advancement of RME's core products and pre-eminent RME Mill Relining System.

Peter was appointed a Company Director in 2003 and remains an Executive Director to this day. He has authored and presented many conference papers at international mining and minerals processing industry events. Peter completed his New Zealand Certificate in Engineering (NZCE) in 1980 and attained a Bachelor of Engineering (Mechanical) with First Class Honours in 1983.

In 2019, Peter was awarded a Doctor of Professional Engineering from the University of Southern Queensland for his PhD thesis entitled 'The Optimisation of Grinding Mill Relining Through Mechanisation and Simulation' – a most significant achievement and much deserved recognition for a life's work and dedication to the global comminution industry and RME.



John Howard

Chief Financial Officer and Chief Executive Team Member

John B. Howard (JB) has been Russell Mineral Equipment's Chief Financial Officer since 2009, where his professionalism, perspective and steady financial management has played a key role in the sustainable growth and global expansion of RME's operations over the last 10+ years. To this end, John has been appointed a member of the Chief Executive Team, and with it, the opportunity to leverage his knowledge and understanding of the finance function to further successful outcomes and the future direction of RME.

John's CFO role means he is responsible for the RME Commercial Group – an able team which not only takes care of day-to-day administrative matters like accounts payable, receivables, shipping, accounting, taxation, credit, export and trade, but just as importantly, ensures that finance is embedded throughout the business and providing decision support across all RME functions and operations.

Additionally, John's skilful oversight helps guide the legal and risk portfolios, which extends to the prudent management of trade finance risk, currency risk, and tax and compliance requirements in foreign jurisdictions associated with RME's international operations.

John is also RME's Company Secretary – a role that sees him administering company affairs, assisting with the governing and monitoring role of the RME board, and supporting the efficient running of board processes for the RME Holding Company and subsidiaries around the world.

Previous to RME, John has over 30 years' accounting, finance and administration experience working in public practice as well as in the agricultural, manufacturing and distribution industries. This included 7+ years as Finance and Administration Manager for Stahmann Farm, supplier of high-quality pecan and macadamia nut products world-wide, and a similar-length tenure with IAMA Limited (formerly Seed and Grain Sales Pty Ltd).

John is a Chartered Accountant, a Fellow of the Governance Institute of Australia and holds a Bachelor of Business with a major in Accounting and Business Management from Charles Sturt University.



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Tandra Coleman

Chief Manufacturing Officer and Chief Executive Team Member

At the heart of Russell Mineral Equipment's reputation for exemplary levels of Customer service are the functions of engineering, manufacturing, supply and delivery. This is why Tandra Coleman is RME's Chief Manufacturing Officer. Not only is Tandra known for making things better for her team and colleagues, but also for the RME Customers she serves. Tandra's recent appointment to the RME Chief Executive Team is also testament to her unwavering engagement, enablement and energy.

In her broad-reaching role, Tandra leads the highly-innovative value stream that begins with RME's technology capability, and ends with Customer delivery – capabilities that are tightly-aligned with RME's mission which is to visibly, defensibly and sustainably improve concentrator performance – and step-changes in safety – for RME's 380 mine site Customers around the globe.

Day-to-day Tandra is responsible for ensuring RME has the capability to deliver its high-quality, purpose-built mill relining technologies and parts to Customers around the world – efficiently, reliably and safely. Her team is made up of engineering, technology specialists, production planning, procurement, inventory, warehouse, fabrication, machining, assembly, disassembly and packing, who work collaboratively to ensure RME delivers on its promise. Tandra understands these logistically-complex operations from her previous RME roles as Group Manufacturing Manager, Supply Chain Manager, and Inventory Controller since joining RME in 2011.

The movement of RME design and product from engineering to manufacturing, through supply and delivery, benefits greatly from Tandra's optimisations, LEAN practices and process-orientated abilities. Tandra is a Certified Supply Chain Professional by the Australasian Production and Inventory Control Society (APICS). She is also an Agile Project Management Practitioner, enabling her to combine the best of agile and traditional project management methodologies to deliver successful Customer outcomes.

Tandra is a strong role model, coach, mentor, strategic planner and skilful business analyst. Her extensive 23+ years in sales, global operations planning, and inventory management with a leading Australian broadacre seed supplier has seen her contribute to RME with critical advice, insights and knowledge. Her commitment to professional and personal excellence, and to safety, ensures her place on RME's Chief Executive Team is highly-valued. Tandra has an Associate Diploma from the University of Southern Queensland.



Cherylyn Russell

Chief Customer Officer and Chief Executive Team Member

Cherylyn Russell is Russell Mineral Equipment's Chief Customer Officer and member of the Chief Executive Team – a position of instrumental importance to the RME organisation and its Customers world-wide. In this newly-created role, Cherylyn works across multiple domains to make certain RME is consistently, and overwhelmingly, delighting its Customers – not just through their experience with the RME Mill Relining System, but at every touchpoint. As each minerals processing operation is unique, so too is every Customer journey. Providing genuine care and individualised satisfaction to these Customers requires sustained focus, dedication and a strongly-differentiated service capability. These are the true hallmarks of the

Company's 35+ year history and is what sets RME apart in the industry.

Moving forward, Cherylyn is responsible for the 'Customer Group' which operates to a Customer-first mandate and includes Order Acceptance, RME Mill Relining System Sales, RME Service and Optimisation Sales, Customer Experience and the Marketing Communications capabilities. Cherylyn sees her role in this as empowering the people of RME to collaborate and deliver on the Company's mission which is to visibly, defensibly and sustainably improve the Customers' concentrator performance. As an authentic, approachable and humanistic mentor, Cherylyn is focused on building a tight-knit team who drive Customer empathy, adoption and engagement, not only through excellence in product and service delivery but through a meaningful commitment to safety, corporate and social responsibility, and strong ties to the regional communities in which the Company operates.

Just as important, however, is Cherylyn's goal to deepen the bonds and nurture lasting relationships across RME's global team – who ultimately make the RME mission possible. As such her collaboration with RME's Chief Executive Team, the Customer Group, and RME's People and Culture functions ensure integrity between the Company's conduct and narrative, always.

Thoughtful creativity has always been at the heart of Cherylyn's endeavours and an attribute she has brought to innovation-driven RME. Throughout the 90's Cherylyn worked in art preservation, consultancy and advertising account management in Sydney, before moving to Toowoomba to own and operate a successful art restoration and consultancy business. Her business, Artshop, was also instrumental in making her acquaintance with RME, initially as a supplier of design expertise and now as a pivotal part of the team. Since 2013 Cherylyn has deepened her engagement from her early involvement as a Marketing Consultant to Marketing Team Leader, Advisor to the RME Holdings Board, Group Manager Marketing Communications through to her appointment as Chief Customer Officer in 2020. RME has afforded Cherylyn the opportunity to combine her two great passions – working with an inspiring and committed team, and partnering with her husband, Dr John Russell, and the collaborative Chief Executive Team (CET) to build successful outcomes for RME staff and Customers, their families and communities.



Michael Gavin

Chief People Officer and Chief Executive Team Member
Acting Chief Services Officer

Michael Gavin is Russell Mineral Equipment's Chief People Officer and member of the Chief Executive Team (CET) – a role that is both leader and mentor to our people, and custodian of the culture that is the very essence of RME.

Michael oversees the People and Systems Group which incorporates Human Resources, Quality, Information Services, Project Management, Change Management, Facilities Management, Learning and Development, and Health, Safety and Environment (HSE). This critical leadership position ensures that not only does

RME have an exceptional team of engaged professionals empowered to deliver a Customer-first mandate, but that they also have the advanced collaboration tools, specialised resources and agile platforms needed to support innovation across the RME business and ultimately in the comminution operations of the Customer.

A key focus for Michael is the preservation of RME's genuinely authentic culture of community, even as it grows globally, and ensuring the team is Customer-focused, creative, productive and purpose-driven – values that make a meaningful difference to employees and RME Customers all over the world. In partnership with the Chief Executive Team and senior leaders, he works to drive a true sense of connection to RME's strategic objectives as the company strengthens its core RME Mill Relining System products and services, and extends its highly-advanced automation capabilities for the world's most sophisticated mineral processing operations.

Michael has over 20 years' proven experience in senior human resources leadership roles in the Australian and international mining sectors. Michael came to RME from Rio Tinto where he held the roles of Head of Employee Relations and General Manager Human Resources. During this period Michael was also seconded to Oyu Tolgoi LLC in Mongolia – a joint-venture copper and gold development project by the Government of Mongolia and Turquoise Hill Resources (of which Rio Tinto owns 51%) – as General Manager, People and Organisation. Michael also gained a wealth of knowledge and expertise as he developed through senior human resources management positions with BHP Billiton from 2006 through to 2011 including General Manager Human Resources for BHP Mitsui Coal as part of BHP's Queensland Coal business, and HR Manager Services with the BHP Mitsubishi Alliance (BMA). Michael has an Australian Human Resources Institute (AHRI) accredited Graduate Diploma in Human Resource Management from Charles Sturt University.

Michael is also currently acting in the role of Chief Services Officer, overseeing the RME Services Group which extends to RME's Regional General Managers (RGMs), Regional Staff and Support, Asset Support, and Mill Relining Optimisation and Consulting services.





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RME delivers innovation to the world

RME's passion and mission has always been to minimise Mill Relining time and to increase relining crews' safety. RME Mill Relining System technologies, used effectively, have quartered the time previously taken to line large mills. Looking forward, RME's focus is to secure the potential of RME's Mill Relining System performance for each and every one of our Customers, past, present and future.

Our commitment to industry is to visibly, defensibly and sustainably improve our Customers' concentrator performance.



RME's global reach extends to over 380 mine site locations.

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JUNE 2020