



Mining, Quarries and Earthmoving Solutions

Wear protection
solutions to keep
material moving

For Welding **Professionals**



Contents



For over 50 years, Welding Alloys has revolutionised the mining industry to overcome wear related challenges, through technical expertise and innovative solutions.

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Our company

Welding Alloys is a global leader in the production of advanced welding consumables and automated welding equipment for hardfacing, cladding, joining and repair.

We also offer an industry-leading range of engineered wear services in our workshops or in situ, as well as a wide range of wear plates, pipes and components. For more than 50 years, industrial users across the globe have relied on the expertise of Welding Alloys to increase productivity and reduce costs through effective repair and maintenance solutions.

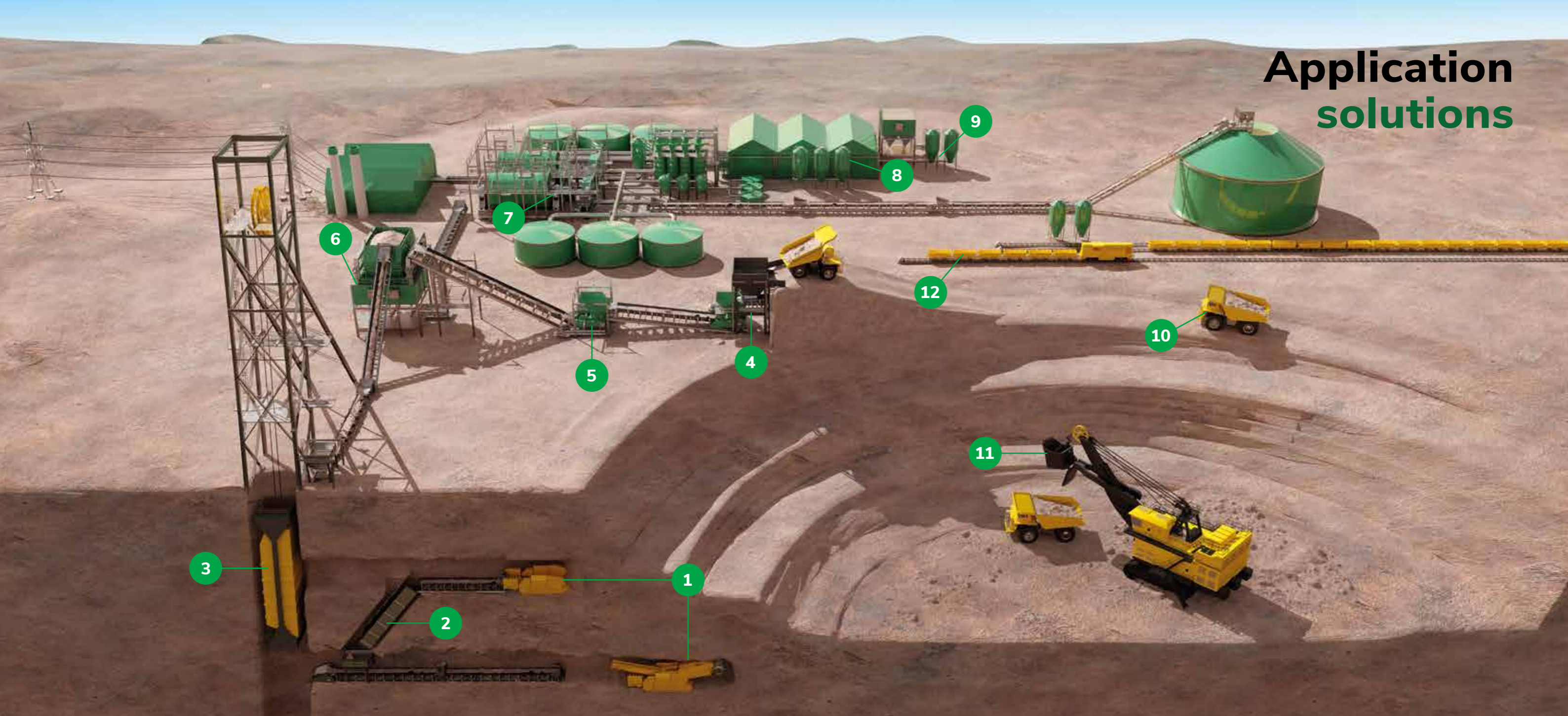
Since 1966, the name Welding Alloys has been synonymous with excellence in research and development (R&D), resulting in a steady stream of innovative products and advanced technical solutions and services.

Today, our R&D and technical teams remain at the heart of the business, able to solve the most complex industrial wear protection challenges by leveraging the latest scientific and engineering practices.

Many of our technological innovations are a result of tapping into our network of academia, standards organisations, welding associations, and research partnerships across the world. We deliver fast-track wear protection solutions in the most challenging environments and industries, through multidisciplinary teams located around the globe.

Welding Alloys is a participating member of the United Nations Global Compact and supports all principles relating to the environment, labour, human rights, and anti-corruption. With this in mind, we have developed welding wires that emit less harmful fumes, and we manufacture a range of our wires using processes that produce less harmful waste for the environment. Our service solutions also contribute to decreased energy consumption and carbon dioxide emissions by extending the life of new and existing parts through repair and maintenance. We continue to improve our products and processes in order to reduce the negative impact on both the welder and the environment.

Application solutions



- 1. Underground Mining - Rotating Arms & Plates
- 2. Chutes
- 3. Skip
- 4. Primary Crusher
- 5. Cone Crusher
- 6. Storage & Transfer
- 7. Inlet/Outlet Trunnions, Gears & Rollers
- 8. Cyclone
- 9. Piping
- 10. Mobile Equipment
- 11. Buckets & Liners
- 12. Railway Frogs & Crossings



Abrasive wear and impact from mining various materials can be significantly mitigated by utilising our extensive range of wear plates for lining or relining parts. This approach extends the service life of arms and plates, thereby increasing production efficiency.



Our wear audits are conducted to offer cost-effective and customised solutions, enhancing wear resistance and reducing maintenance downtime, particularly for components such as chutes.



Impact and abrasion from material transported to ground level can be reduced by relining existing skips with our wear plates, thereby extending their service life. Additionally, we specialise in designing and manufacturing new, wear-resistant skips.



We have developed repair solutions for all types of crushers, from inlet hoppers and discharge chutes to optimise performance. Our range of welding consumables optimises crusher performance, reducing maintenance costs and lowering total cost of ownership.



Worn parts, like mantles and casings, can be restored to their original template either on-site or in situ. Additionally, we can preemptively hardface new parts before installation to extend their lifetime.



Our heavy-duty wear plates are versatile and adaptable to different applications to protect against the many different types of wear that are found within the material storage areas and the material transfer conveyors.



Regular maintenance ensures smooth operations. We collaborate with customers, offering timely and effective repair, refurbishment, replacement, and installation services for essential components.



Material flow can wear down cyclone casings. Our solutions, including ceramics, plastics, and advanced coatings, enhance wear resistance while preserving the part's original geometry.



Our technical experts deliver turnkey solutions, covering the design, manufacture, and supply of wear plates, pipes, tubes, or overlay products. Projects adhere to OEM or customer specifications to meet the specific needs.



Downtime and unplanned maintenance can affect production. Our engineering teams offer in situ repairs with wear packages, available as merchant plates or ready-to-install wear kits.



Enhance abrasion and impact resistance on buckets and loaders with our wear plates. Our lining or relining services extend the service life of mobile equipment.



We specialise in rebuilding rail frogs and crossings affected by metal-on-metal wear. Our Frog Top Rail (FTR) welding machine, along with welding consumables dedicated to rail applications, maximise the efficiency and quality of these repairs.

Welding Alloys and mining: our integrated offer

Our technical engineering teams provide wear protection services and solutions for the mining, quarrying and earthmoving industries, both on-site and in our global workshops. With decades of experience, our expertise spans from small soft rock mining operations to the largest, deepest, and most remote hard rock mines.

Our Integra™ service teams deliver solutions to resist all types of wear phenomena, including abrasion, erosion, and impact. Utilising advanced welding consumables and automated equipment, our fully operational service teams specialise in rebuilding, hardfacing, cladding, and fabricating new components.

Our extensive range of welding consumables, developed specifically for mining, quarrying and earthmoving component wear, along with our state-of-the-art welding equipment and engineered components, ensures an extended lifetime for plant equipment and improved operational efficiency.



Our Integra™ service engineers can provide solutions to enhance mining, quarrying and earthmoving performance.

Our solutions

For more than 50 years, Welding Alloys has developed extensive knowledge of wear parts in the mining industry. This knowledge enables us to offer the best solutions to help our customers achieve their goals of reducing wear and increasing the lifetime of equipment. Our solutions increase wear resistance on parts, including primary and secondary crushers, mobile equipment, tubes, pipes, cones, classifiers, and much more.

Hardfacing

Our Integra™ service experts have extensive experience in hardfacing and rebuilding components back to their original profile to improve wear resistance. Our hardfacing solutions can be carried out in our workshops or in situ, using our own-manufactured cored wires. We manufacture a range of low, medium and highly alloyed cored wires specifically for hardfacing parts used in mining, with more advanced materials and alloys also available.

Why choose Welding Alloys' Hardfacing solutions?

- Significantly improved wear life
- Less machine downtime
- Lower production costs
- Significant savings



We provide services in our workshops or in situ, and will recommend the correct welding methods, technologies and consumables, to optimise the service life and performance of parts.

3D-Carb™

3D-Carb™ is a welded solution, manufactured by a proprietary method to produce through-thickness hardfacing while maintaining the vital balance between extreme wear resistance and component toughness.

3D-Carb™ is not an off-the-shelf product, instead, it is designed and produced to address specific wear problems and is then supplied ready for installation.

Welding Alloys carries out wear audits to examine wear phenomena data. This analysis informs the design, development, and production of tailored wear-resistant liners and components, precisely addressing the individual needs of each customer.

Why choose Welding Alloys' 3D-Carb™ solution?

- Significantly reduced wear rates of components
- Notable reduction in maintenance demands
- Enhanced longevity of components, effectively reducing the total cost of ownership (TCO)
- Application-specific designs for precise wear protection addressing the root cause
- Components retain their original profiles longer, resulting in decreased energy consumption
- Elevated production tonnage due to improved component performance

SprayClad®

Welding Alloys' Sprayclad® solution marks a significant advancement in protective coatings for the mining, quarrying and earthmoving industries, offering unmatched erosion, abrasion, and corrosion resistance. This innovative thermal spray solution is designed to prolong the life of essential mining equipment, such as shafts, bearing journals and dimensional repairs, ensuring continuous operations and substantial reductions in maintenance downtime.

By applying a durable, high-performance layer to surfaces exposed to severe wear and extreme conditions, Sprayclad® effectively protects equipment against the intense wear common in mining and quarrying environments.

The outcome is a notable enhancement in mine performance, characterised by improved equipment reliability and

efficiency. This not only reduces operational costs by decreasing the frequency of repairs and replacements but also increases productivity by extending the service life of crucial machinery.

Why choose Welding Alloys' SprayClad® solution?

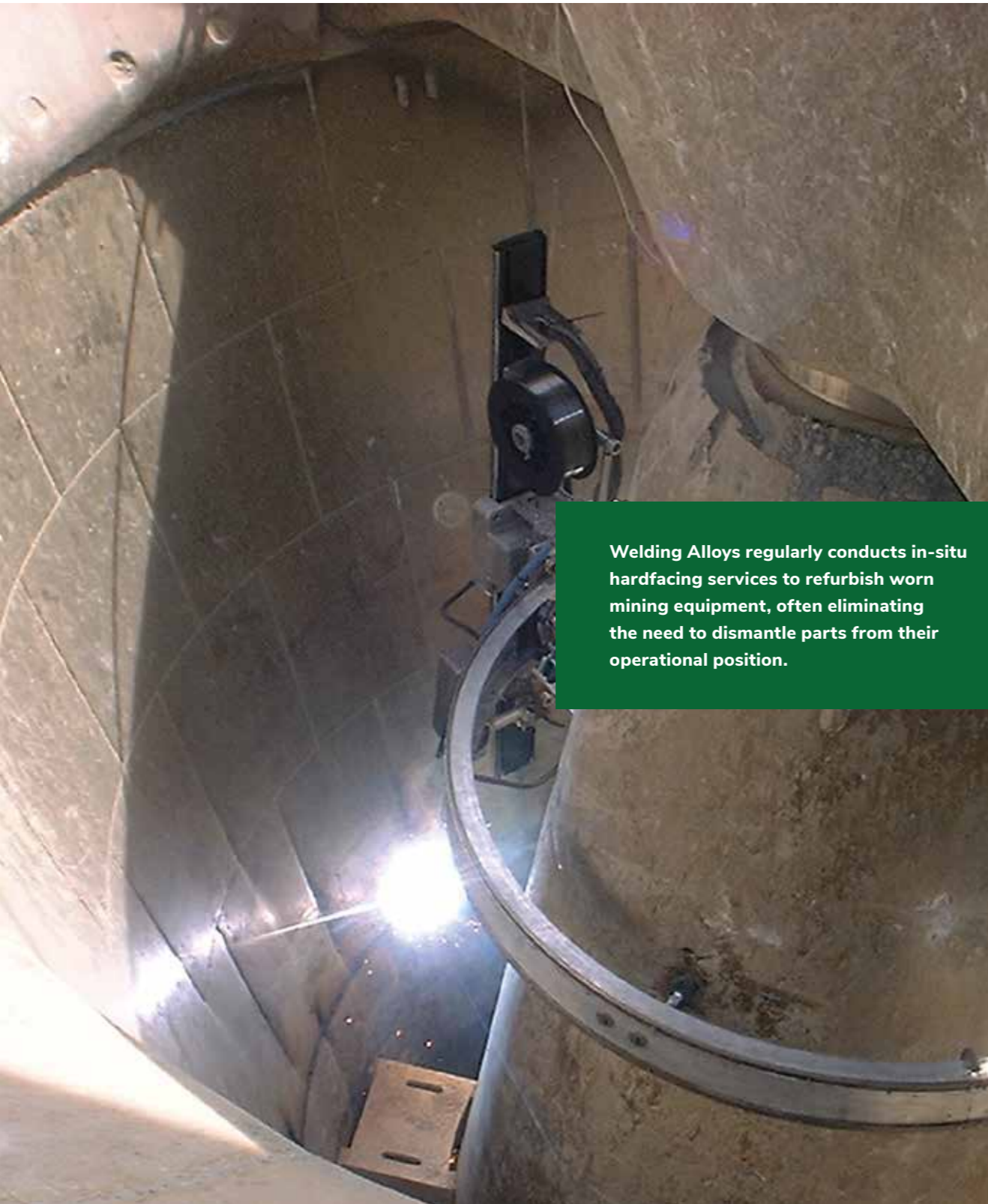
- Adaptability of the coating tailored to the specific need
- Improved corrosion, abrasion and/or erosion resistance
- Up to 75% faster than traditional cladding techniques
- No water needed in the heat exchanger as process is "cold"
- Reduced fouling and cleaning
- Total cost of ownership reduced through increased wear life and fewer maintenance cycles

SprayClad® is unavailable in the USA



Welding Alloys specialises in the application of thermal spray coatings for the repair and maintenance of key components, using the latest surfacing techniques.





Welding Alloys regularly conducts in-situ hardfacing services to refurbish worn mining equipment, often eliminating the need to dismantle parts from their operational position.

Composite wear plates



Welding Alloys offers an advanced range of composite wear plates tailored for the mining, quarrying and earthmoving industries, designed to endure the most challenging environments. These plates combine exceptional durability, superior wear and impact resistance, significantly extending equipment life.

By minimising maintenance and operational downtime, they provide a cost-effective solution, enhancing productivity. Engineered to your specifications, our plates can be shaped, rolled, and formed to protect parts such as hoppers, chutes, and buckets.



Hardplate™

Our heavy-duty composite wear plates are supplied with a standard overlay thickness of 4 to 15 mm. These are designed to endure elevated operating temperatures and harsh environments. Suitable for applications such as fans, cyclones, and vertical roller mills.

Hardplate™ FlowMax

Our smooth, crack-free wear-resistant plates are designed for applications where hang-up, carryback, and impact occur in combination with abrasive wear. These plates have a low coefficient of friction, offering better sliding properties. Suitable for applications such as mobile equipment, hoppers, and chutes.



Hardlite™

Our ultra-thin composite wear plates offer the ideal solution when weight is a key consideration, while offering unrivalled wear protection with a hardness of 64 to 66 HRC. Suitable for applications such as hoppers, chutes, fan impellers, and dynamic separator rotor blades.

Tuffplate™

Our impact-resistant wear plates are designed for applications susceptible to a combination of abrasion or impact. The wear resistance of Tuffplate™ is fully maintained at temperatures of up to 200°C. Suitable for applications such as hammers, bucket liners, and crusher components.



Welding consumables



Advanced welding consumables specially designed to protect against wear from abrasion, erosion and impact.

Welding Alloys manufactures an extensive range of welding consumables for hardfacing, cladding, joining, and repair applications. For more than 50 years, we have developed a range of welding consumables dedicated to improving part performance within the mining, quarrying and earthmoving industries.

Our cored wires are produced using Welding Alloys manufacturing equipment and technology, which means we have complete control over the whole process and can ensure the highest quality products.

Our HARDFACE product family is a range of cored wires for rebuilding or hardfacing of critical components subject to wear from abrasion and impact, making them the ideal solution for mining applications.

HARDFACE NICARBW, a nickel based cored wire containing tungsten carbide, is particularly suited to the mining industry. It offers extremely high hardness, delivering superior resistance to heavy abrasion, such as that which occurs on earthmoving equipment.

We also manufacture tubular hardfacing electrodes, which provide enhanced welding performance and efficiency when compared to standard electrodes for the repair and maintenance of parts.

Our technical experts are located globally to support customers in choosing the right consumable for their specific application. We will partner with customers to provide innovative, custom solutions that can respond to even the most unique and demanding wear phenomena.

Welding machines

Automating the welding process improves efficiencies by offering consistent and high-quality repairs, whilst minimising downtime. Customers can benefit from a comprehensive range of advanced welding equipment from Welding Alloys, designed for hardfacing, cladding, rebuilding, and joining of components.

Our machines incorporate state-of-the-art technology, enabling precise, consistent, and repeatable welding with our advanced D3 Touch and D3 Pendant control systems. The range includes heavy-duty fixed installation machines, portable machines, and custom machines tailored to specific applications.

Our Workshop Maintenance Kit (WMK) machine, specifically, offers an easy transition from manual welding to automation. The machine is portable, lightweight yet robust, and capable of withstanding harsh environments, meaning it can easily be used to carry out weld repairs and maintenance either on-site or in a workshop.



Innovation



We rely on more than five decades of knowledge, long-term customer relationships, and in-depth analysis to provide best-in-class solutions.

Innovation is an integral part of Welding Alloys' approach to industrial solutions, and we have consistently invested in this area since our inception in 1966.

In particular, our innovation-driven approach has led to significant advancements in wear protection solutions for the mining industry, offering products that are specifically designed to withstand harsh conditions and improve the efficiency and longevity of mining, quarrying and earthmoving equipment.

Our continuous development has aided the identification of new opportunities and given birth to numerous innovative solutions, always with customer satisfaction as our main focus. Our simple philosophy allows us to continue to deliver best-in-class products and services to every major industrial sector across the globe.

Our unique culture forms the backbone of the company and our teams of engineers are constantly interacting to share knowledge, information and ideas. Collaboration across on-site operations and the consideration of customer requirements to improve existing products and develop new ones are always based on sound scientific principles and engineering solutions.

Over the past three decades, Welding Alloys has built, and continues to grow, a global network of universities and research organisations. This allows us to remain at the forefront of the latest market trends and state-of-the-art technological innovations.

Our global footprint

Our specialists and industry experts are active in 150 countries across the world and have an in-depth understanding of the operating conditions and customer requirements across a wide range of sectors.



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