

ArcelorMittal South Africa

FORGING A NATION'S STEEL
BACKBONE, SUSTAINABLY





AMSA

ARCELORMITTAL SOUTH AFRICA

Forging a nation's steel backbone, sustainably

RESEARCH BY **JOSEPH PHILIPS**



Global demand for steel continues to rise and fall, just as the fortunes of the South African economy on the world stage. But what links the nation and the raw product is ArcelorMittal South Africa (AMSA), the biggest steel producer in sub-Saharan Africa.

Since 1928, AMSA has forged an excellent reputation as a modern supplier of steel products to the domestic and global markets. Yet, when the world is pressuring for global decarbonization transformation of the industry and demanding solutions to the climate challenge, AMSA has been at the forefront.

As part of ArcelorMittal parent group, it is committed to becoming carbon neutral by 2050. In demonstrating that the steelmaking process can become carbon neutral, it has developed groundbreaking work to reduce emissions by 30% by 2030 before reaching net zero in 2050.

Aligning with ArcelorMittal's Decarbonisation Roadmap, AMSA is actively exploring the production of green hydrogen directly reduced iron at one of its steelworks in the Western Cape among many innovative and pioneering initiatives.

The ArcelorMittal Group employs about 154,000 people and produces more than 59 million tonnes of crude steel annually



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ARCELORMITTAL AWARDS MORRIS TENDER FOR 100 TON CRANE

Morris Material Handling SA (Pty) LTD, Southern Africa's largest crane company, plays a crucial role in the supply and manufacturing of equipment for industrial applications.

Providing electric overhead travelling cranes, wire rope hoists, jib cranes, chain hoists, and accessories, Morris has established a reputation for its professional expertise in design, fabrication, and assembly of light, medium, and heavy-duty lifting products.

Additionally, through its dedicated service division, known as Crane Aid, the company ensures the continuous operation and safety of lifting equipment. Crane Aid offers services such as maintenance, load testing, and refurbishment for all makes of cranes and hoists.

ArcelorMittal South Africa is the largest steel producer on the African continent. Headquartered in Vanderbijlpark, Gauteng. Production capacity is approx. 7 million tonnes of liquid steel per annum. The company supplies over 60% of the steel used in South Africa and exports the rest to sub-Saharan Africa. The 10 000 employees and contractors produce flat and long steel in hundreds of grades and specifications. Vanderbijlpark Works is one of the world's largest inland operation steel mills and supplier of flat steel products in sub-Saharan Africa.

In a testament to Morris Material Handling SA's engineering capabilities and commitment to excellence, the company was proudly awarded the tender to design, manufacture, and install a 100-ton

engineered crane at the Vanderbijlpark Works.

This impressive crane, serial no MI0284, was designed and built-in house at Morris's head office in Benoni, showcasing the company's commitment to innovation and quality. Morris employed the latest technologies and the highest quality components to create this engineering beast.

Crane MI0284 is a 37-meter span double girder, heavy-duty slab handling crane equipped with an open winch-type hoist featuring dual, synchronized rope drums. It weighs in excess of 220 tons and is designed to handle varying sizes of slabs, with an impressive capacity of up to 100 tons. Operating at the Hot Strip Mill within Vanderbijlpark Works, this crane is crucial to the continued production of the mill.

To meet the demanding production requirements, the crane is designed to hoist at 9 meters per minute, cross travel at 70 meters per minute, and long travel at 100 meters per minute. The crane is controlled from a bridge-mounted cabin, ensuring precision and safety during operations.

The successful erection and commissioning of this engineered crane marks a significant milestone, as it has already proven its worth in enhancing production efficiency at Vanderbijlpark Works. Morris Material Handling SA's role in this project underscores its position as a leading force in the industrial equipment and overhead crane manufacturing industry in Southern Africa.

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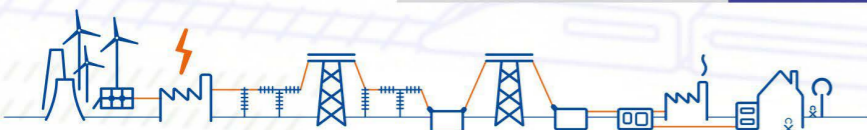
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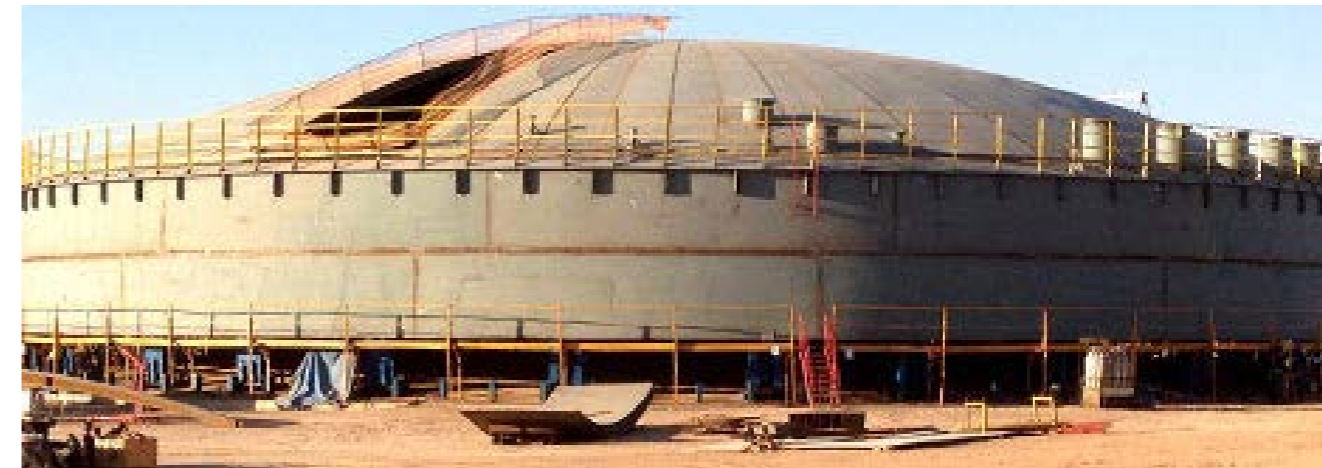
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Overview

The ArcelorMittal Group employs about 154,000 people and produces more than 59 million tonnes of crude steel annually. With an industrial presence in 60 countries across Europe, the Americas, Asia and Africa, it is a leader in all major global markets, including automotive, construction, household appliances and packaging, with leading R&D and technology.

Through this association, AMSA has access to world-class research and development, best practice processes, aggressive procurement contracts and international market leverage to ensure the company remains at the steel-industry's cutting edge.

AMSA's 10,270 employees and contractors produce flat and long steel in hundreds of grades and specifications for further value added potential for its customers, such as downstream manufacturers in Southern, West and East Africa. In 2022, AMSA manufactured 2.46 million tonnes of finished primary steel, around 20% lower compared to 2021.

Its steel is manufactured primarily at

facilities in Vanderbijlpark and Vereeniging in the Vaal Triangle of Gauteng, and in eMalahleni, Mpumalanga and Newcastle, northern KwaZulu-Natal.

A second integrated flat steel plant, Saldanha in the Western Cape, has been under care and maintenance since 2020. While employing traditional ironmaking and primary steelmaking methodologies, it has begun actively pursuing new low-carbon practices and technologies.

AMSA's coke batteries in Vanderbijlpark and Newcastle produced 1.1 million tonnes of coke in 2022. Coke production is expected to increase to an average of 1.9 million tonnes annually over the next five years.



Socioeconomic Impact

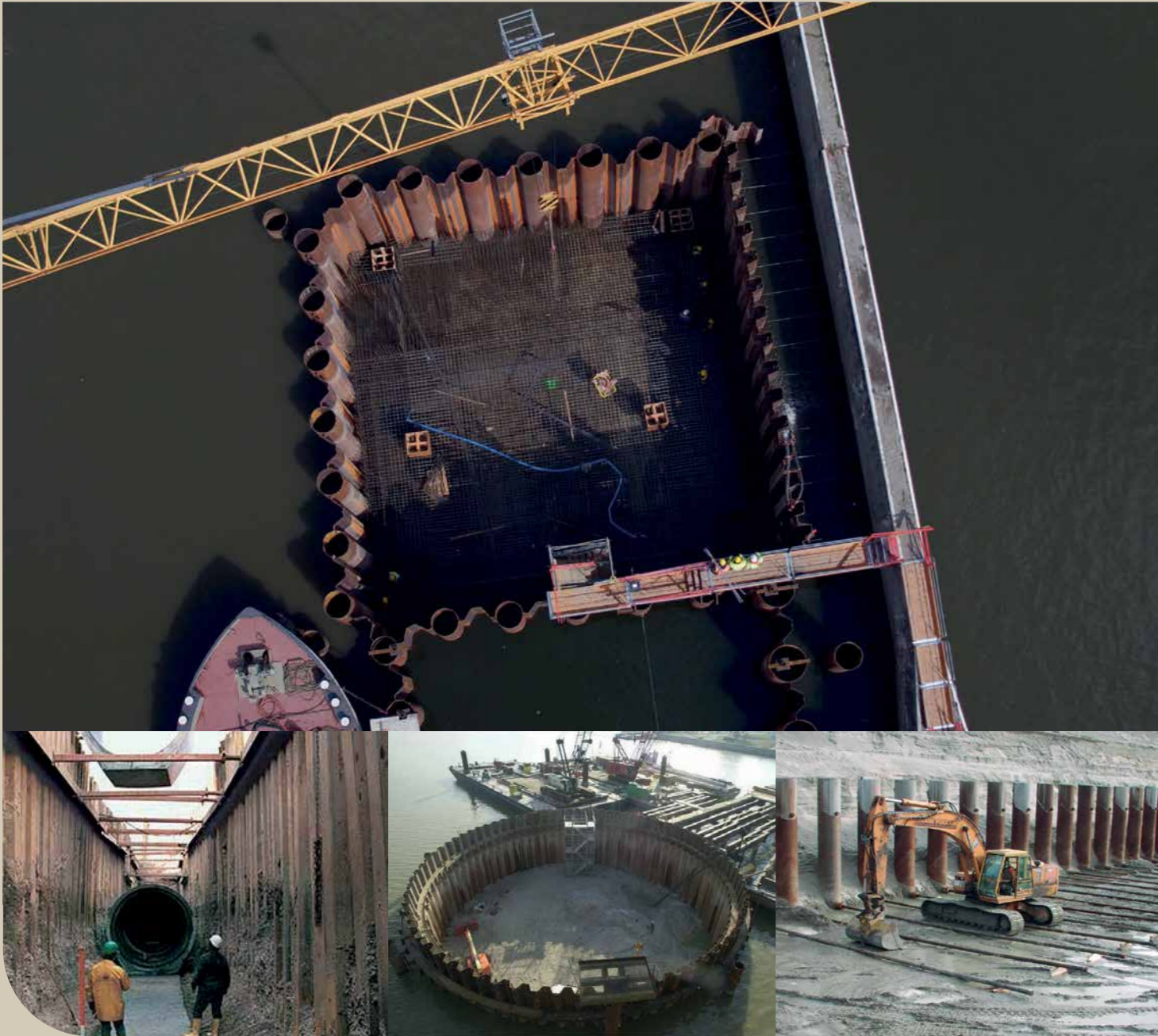
AMSA is deeply committed to making a difference in the communities it serves and across South Africa. Its skills development and training programmes are aligned with a specific emphasis on making significant progress concerning gender diversity, particularly in the manufacturing and heavy industrial sectors.

In 2021, the company saw an increase of 100% in the primary skills pipeline from a budget of 200 apprentices and production learners to an achieved actual of 450 participants. Candidate engineer and technician pipelines almost doubled from 34 to 60 participants. The graduate pipeline was reintroduced in 2021 to include six participants.

In 2021, AMSA supported a programme that provided 80 learning opportunities for people with disabilities and continued to support the programme in 2022. Its 2022 bursary programme provided 40 bursaries for youth at tertiary institutions and 30 bursaries for employees aligned with its internal succession plan. Interest-free study loans supported the development of employees and their dependents in accessing opportunities for tertiary study programmes.

AMSA's training spending increased from R87 million in 2021 to a planned R106 million in 2022.

It is recognized by the Manufacturing, Engineering, Related Industries Sector Education and Training Authority as



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Its four key core pillars of its CSR are entwined around education, health, community development and volunteering

platinum-ranked skills development company and is also a member of the Accelerated Artisan Training Programme, a group of six leading South African companies committed to the South African government's extensive skill training.

Employment equity and a commitment to cultural diversity are cornerstones of its employment policy. This is particularly evident in its skills development programme, which is focused on ensuring a training pipeline with a priority towards Historically Disadvantaged South Africans, especially females, for skilled and professional roles.

AMSA is also committed to uplifting and improving the quality of life in the communities within which it operates, by investing time, knowledge, and skills.

Its four key core pillars of its CSR are entwined around education, health, community development and volunteering. AMSA's fundamental pillar to South Africa's skills policy - and also that of the Joint Initiative on Priority Skills Acquisition - is to align tertiary education and other institutional training with the actual skills required by both the public and private sectors.

Improving mathematics and science performance at schools in the communities around the company's areas of operation provides a sustainable resource for AMSA and works towards alleviating the national skills crisis. It is also recognized

for its leading role in building schools and Science Centres nationwide, and is also fully committed to further Broad-Based Black Economic Empowerment.

AMSA is continuing to invest significant resources to improve its social footprint by uplifting and empowering communities by providing improved health through food and income provision, skills development, and encouraging self-sustainable environmental management practices.

Sustainability and New Technologies

As one of South Africa's highest carbon emitters, AMSA is working hard to make its



operations carbon neutral. By 2030, it aims to reduce carbon intensity by 25%, from a 2018 baseline of 2.90 tonnes of carbon dioxide (tCO₂ e) per tonne of crude steel to 2.16 tCO₂ e/t crude steel, and 86% by 2050 to 0.40 tCO₂ e/t crude steel.

Steel is a hard-to-abate industry that accounts for 7%-9% of worldwide carbon emissions. The ArcelorMittal group has made several decarbonization commitments, subject to government and funding support being secured.

Since 2021, AMSA has made significant progress in developing options to achieve a material reduction in carbon intensity. Numerous bankable 'no-regret' opportunities have been identified. Central to these is energy-efficiency improvement, both non-capital and capital-intensive.

It has established a dedicated carbon abatement office, initiated detailed mapping of the impacts of a steel Just

Transition on employees, communities and suppliers, and begun discussions with development finance institutions on opportunities for possible preferential funding.

It has also concluded a joint development agreement with a prominent development finance institution on the production of low carbon intensity steel in Saldanha, signed a memorandum of understanding with the Council for Scientific and Industrial





Research on developing strategies for green hydrogen as well as green innovative direct reduced iron and low carbon intensity steel based on renewable hydrogen and established working groups with various role players on carbon capture and utilization and green hydrogen.

AMSA has announced a partnership with Sasol to develop carbon capture and utilization (CCU) technology using the process of carbon production at its Vanderbijlpark Works and to advance the production of low-carbon intensity steel using green hydrogen.

It is also exploring opportunities with various role players to source large amounts of renewable energy. It analysed with raw material suppliers mutually beneficial opportunities arising from low carbon intensity steel and scoped CCU opportunities with multiple industrial concerns.

It has also signed a memorandum of understanding with a global developer of transformational energy solutions to advance the production of green DRI at the Saldanha Works and launched projects to generate 200 megawatts of renewable power at available land on its premises.

Its two blast furnaces at Vanderbijlpark, C and D, have annual production capacities of 1.3 million tonnes and 1.9 million tonnes of molten iron, respectively. In 2021, the



blast furnaces accounted for many of its Scope 1 and Scope 2 carbon emissions.

Its decarbonization roadmap envisages Blast Furnace D undergoing a 'no-regret' reline and upgrades between 2027-2030 and the commissioning of a suitable electric arc furnace. In 2030, Blast Furnace C will be permanently closed, and Blast Furnace D will return to service as a low-carbon-enabled furnace.

World-leading research and development work by the ArcelorMittal group into developing low-carbon enabled furnaces is showing promise and progressing at pace. Radically lowering the carbon profile of these furnaces will be achieved by reducing coke rates, injecting hydrogen into the furnace and potentially using

biomass as an additional energy source.

While it explores all opportunities, switching to green hydrogen in Saldanha will likely mean it will become the first African producer of low-carbon intensity steel. The Midrex provides a unique option for exporting green DRI products, produced using green hydrogen, to developed markets.

From a global perspective, ArcelorMittal group's European arm is investing in two routes to carbon neutrality, Smart Carbon and an innovative DRI-based route, in recognition of the need to act now to reduce CO2 emissions.

In its first climate action report, the company is pioneering Smart Carbon,





ArcelorMittal South Africa (AMSA) doesn't just rely on suppliers; it forges lasting partnerships that redefine the landscape of responsible sourcing. At the heart of AMSA's philosophy lies a commitment to "safe, sustainable steel," a principle that permeates its engagements with strategic partners, contractors, and suppliers. This commitment extends beyond the factory floor, reaching into the communities AMSA serves, fostering a symbiotic relationship between industry and society.

a carbon-neutral steelmaking route that leverages all clean energies – circular carbon, clean electricity and carbon capture and storage (CCS) - within the high temperature-controlled reduction environment of ironmaking. In its first phase, Smart Carbon will primarily use circular carbon.

Reaching carbon-neutral steelmaking via DRI involves moving from predominantly natural gas to hydrogen, the critical reductant in ironmaking. As this hydrogen becomes 'green', the steelmaking process comes close to carbon neutrality.

While both the Smart Carbon route and the DRI-based route have the potential to deliver carbon-neutral steel by 2050, the critical difference between the two routes is that Smart Carbon can deliver results sooner through its use of complementary technologies which enable incremental progress.

The shift will be to smarter steels: using innovative processes which are more efficient, use less energy, and emit significantly less carbon. Steels that are cleaner, more robust and reusable.

Strategic Supplier Network

In the intricate dance of steel production,

Innovative Collaborations

One of the keystones in AMSA's supplier network is Morris Material Handling SA, a visionary partner that designed, manufactured, and installed a monumental 100-ton engineered crane at the Vanderbijlpark plant. This collaboration not only showcases engineering prowess but also underscores AMSA's commitment to innovation in materials handling, a critical aspect of steel production.

Driving Technological Advancements

ABB South Africa stands as a technological linchpin in AMSA's journey. Their control



At the heart of AMSA's philosophy lies a commitment to "safe, sustainable steel," a principle that permeates its engagements with strategic partners, contractors, and suppliers



technology played a pivotal role in expanding production at AMSA's flagship KwaZulu-Natal steelworks. The implementation of System 800xA resulted in a remarkable 12% increase in liquid iron production. This technological leap showcases AMSA's dedication to adopting cutting-edge solutions and the transformative impact of strategic supplier collaborations.

Sustainable Engineering Solutions

Averda South Africa is not just a waste management partner but a key player in AMSA's commitment to environmental stewardship. Their three-year contract involves the collection, transportation, and disposal of diverse waste streams, aligning with AMSA's vision for a sustainable and responsible waste management process.

Local Provider Engagement and Empowerment

Triangle Bearing, a crucial automotive parts store, epitomizes AMSA's commitment to community integration. Through partnerships with local suppliers like Triangle Bearing, AMSA not only optimizes its supply chain but also fuels economic growth in the regions it serves. Another key local contributor is DaltronX, a proudly South African enterprise specializing in high-performance carbide conical picks and drill steels. With an impressive three-decade track record and a streamlined production process, DaltronX has successfully delivered over 90 million conical picks globally, showcasing a remarkable legacy of local ingenuity and global impact.

Innovating Materials and Processes

Morgan Advanced Material, specializing in carbon, advanced ceramics, and composites, adds a layer of sophistication to AMSA's supplier portfolio. Their collaboration contributes to the development of specialist products, pushing the boundaries of materials science within the steel industry.

ICT Excellence

Gijima Technologies, a stalwart ICT partner since 1998, exemplifies AMSA's commitment to technological resilience. This partnership goes beyond a client-supplier relationship, representing a shared journey toward digital transformation in the steel sector.

Engineering Solutions Provider

KLINGER Mzansi emerges as an onsite engineered solutions provider, showcasing the diversity of partnerships within AMSA's supplier ecosystem. Their role highlights the importance of tailored solutions in optimizing operations and ensuring efficiency in the steel production process.

As AMSA continues to shape the future of steel production, these partnerships stand as beacons of innovation, sustainability, and community-centric practices. The synergy between ArcelorMittal South Africa and its strategic suppliers isn't just about steel; it's a collaborative endeavor that forges a path toward a responsible and thriving industrial future.



The Future

AMSA carries the responsibilities of more than 10,000 employees and thousands more in terms of families and communities on its back. Looking to the future, it has demonstrated that it has one eye on ensuring its employees, immediate communities, and the economic health of South Africa are not only assured, and on sustainable production.

Through its leadership in Sub-Saharan Africa, producing quality steel products safely, being an employer and supplier of choice, and striving to be among the lowest-cost steel producers in the world, its position to be the champion of Africa's industrial ambitions through sustainable steel is assured.

By harnessing its innovative technical capabilities with a mindset and a passion to make a positive difference for people

and the planet, AMSA intends to lead its industry's decarbonization journey with a highly effective roadmap that minimizes carbon emissions by maximizing its economic leverage. Its position as a powerhouse of change is being realized.

AMSA

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