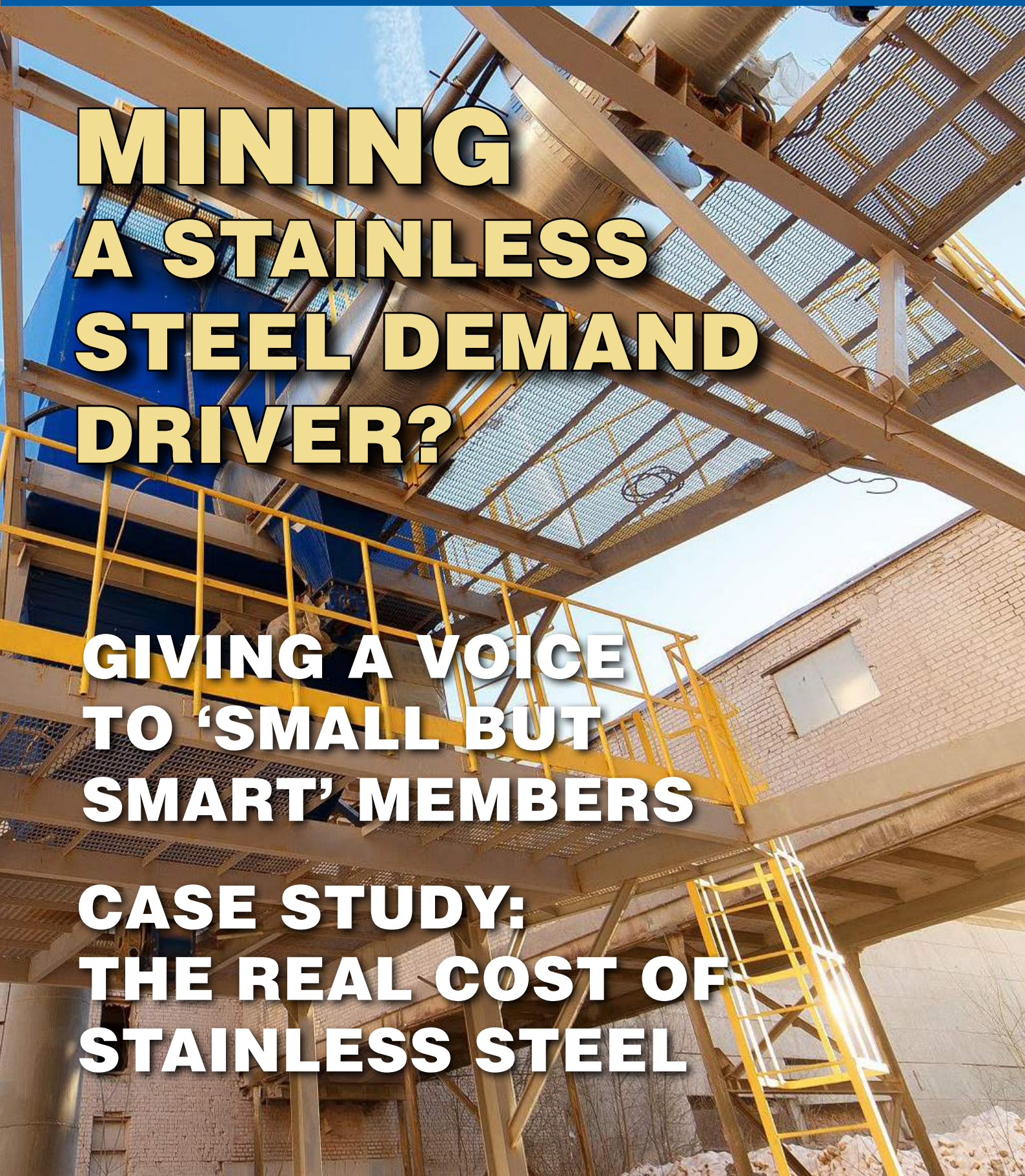
stainless steel
the journal of the southern africa stainless steel development association



MINING A STAINLESS STEEL DEMAND DRIVER?

GIVING A VOICE TO 'SMALL BUT SMART' MEMBERS

CASE STUDY: THE REAL COST OF STAINLESS STEEL

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TENACITY AND RESILLIENCE THE HALLMARKS OF LOCAL INDUSTRY

We are halfway through the second year of the pandemic and to some of us it may be a second year that was not expected. It is becoming clear that the situation will still last for some time and that the effects, positive and negative, will remain indefinitely if not forever. However, we can perhaps find some perspective if we look back at our thoughts and outlook on things a year ago.

A year ago, our industry, like many others, was still trying to adjust and cope with the practicalities of the lockdown and pressures brought about in the fabric of society, as well as finding ways to remain relevant, survive and still contribute to the national economy. Circumstances were still new, and this uncertainty was reflected in our industry's sentiment that declined to confidence levels of around 27% .

Many might still ask whether anything has changed since then? There are still restrictions on activity; health infrastructure is still under pressure, and we still do not know when this will end. Whilst this might be true, it can also be argued that we have developed the ability over the past year to better cope with the uncertainty that remains with us. Sassda has always had a strong belief in the resiliency and robustness of our membership and industry and this has been proven over the past decades when the political and economic tides turned against the prosperity of the industry. The South African stainless steel industry knows how to survive and become stronger.

A GLIMMER OF HOPE

Since a year ago, the international demand for stainless steel started to increase again and we see the upward movement of the international nickel price. Nickel is a key commodity in the production of austenitic stainless steel, as well as duplex grades. This seems to support reports of international demand rising. Locally, there are growing reports of increased workload and we are starting to see some waiting times on certain grades and gauges. Sassda statistics on the apparent consumption of stainless steel in the local market also seem to indicate that we are on a road to recovery. Economists predict improved economic growth for South Africa in this financial year, and all of the above factors support the increase in our industry's confidence levels to over 60% for a number of consecutive months.

Other factors have also contributed to a positive outlook. This includes the announcement on alternative energy sources that provide a solution to energy constraints with tangible improvements on the horizon within 18 to 24 months. The long-awaited Steel Master Plan has also been signed with a good strategy for the growth and development of the stainless steel sector. In addition, it contains a well-balanced development strategy for the upstream portion of the value chain, strong development of downstream demand, with the potential for cost-cutting measures, allowing different sectors of industry to support each other with capacity and skills.

Sassda believes, we can reflect on a year that has been traumatic at many levels for members and industry. However, it has been also a period during which our industry displayed its tenacity and resilience with the ability to adapt to circumstances and to survive crises, coming out stronger and better at the end. It is also a time to reflect on the organisations that did not make it through this; how will we assist them to come back? It is also a time to reflect on the individuals we have lost in our industry over the past year due to the virus; they will not be forgotten.

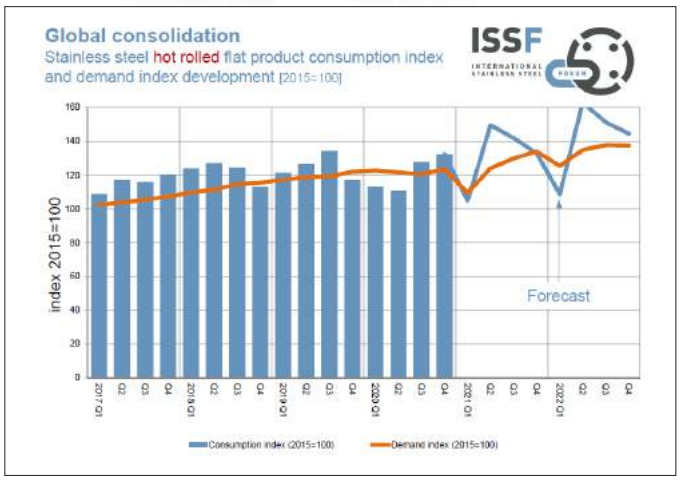
At the end of it all, we can proudly say that we are honoured to be in the South African stainless steel industry that remains Simply Brilliant – past, present and in the future.

Michel Basson

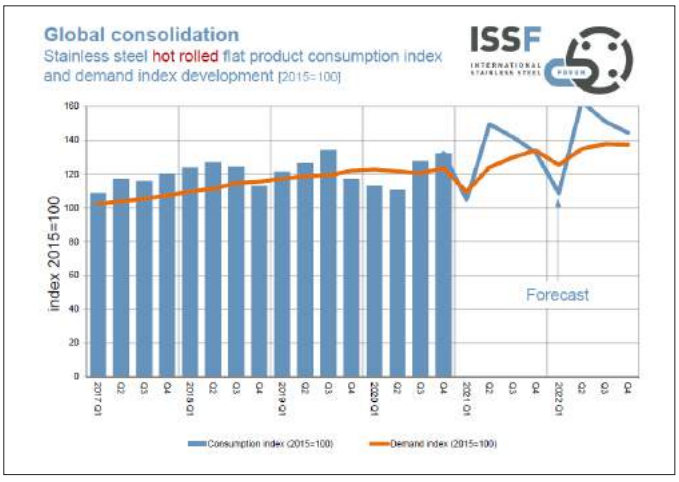
Sassda Acting Executive Director

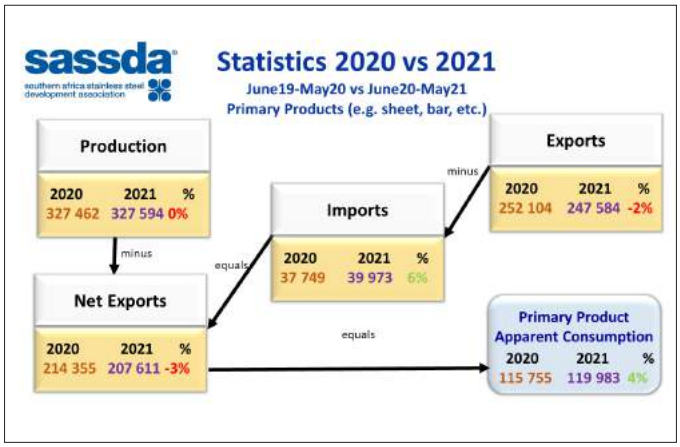
STATE OF THE NATION

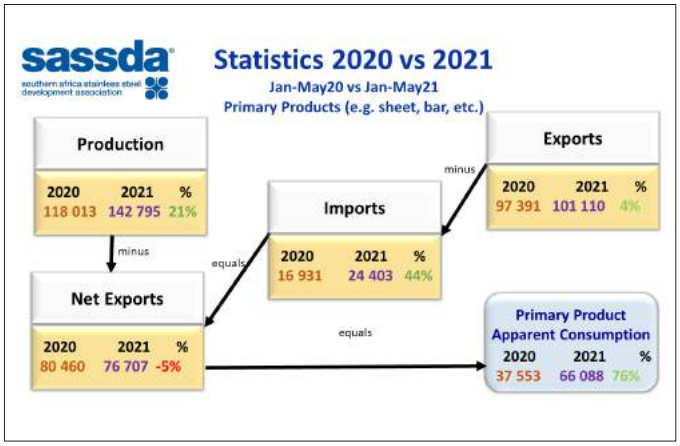
In our Perspective article in this issue, we refer to a seemingly growing demand for stainless steel of all forms at a global level. We also mentioned maintained levels of high confidence in the local stainless steel sector. In this article we will support these statements with some graphic statistics. The statistics were supplied by the ISSF as well as from our own research based on data received from dtic, SARS and SeifSA.



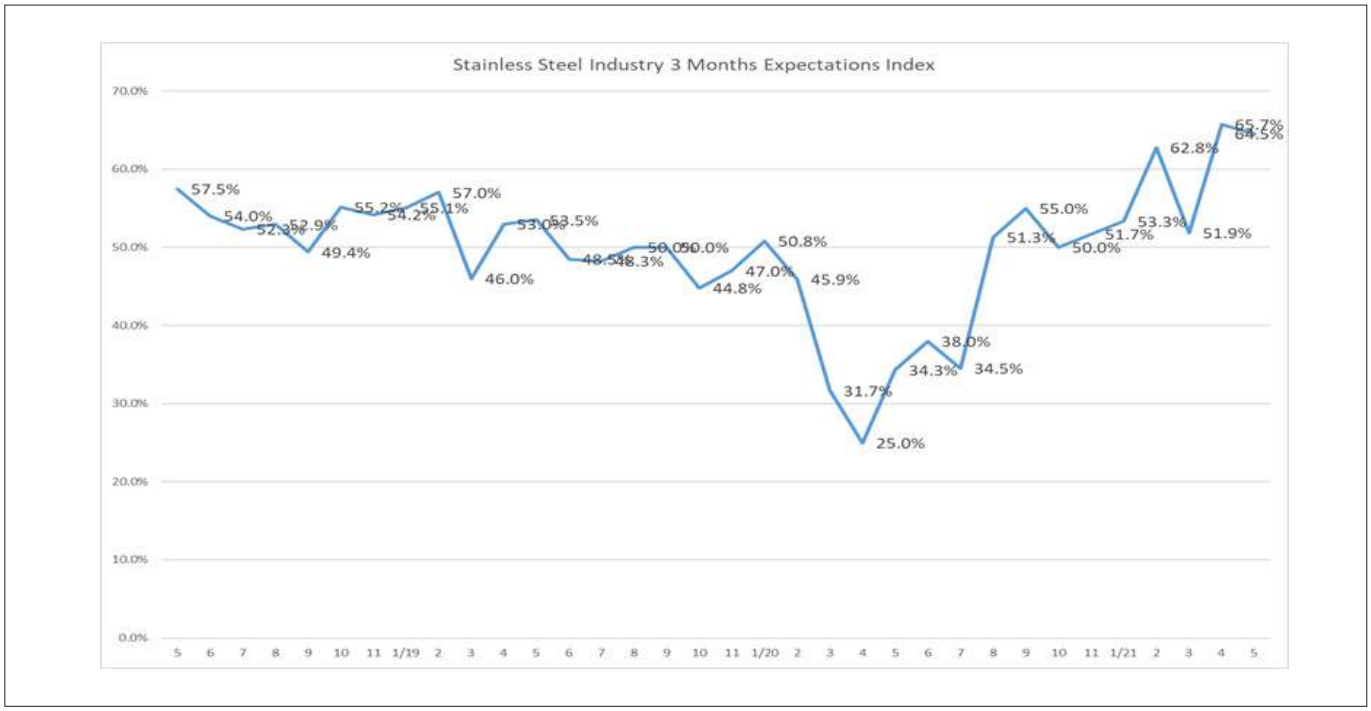
The historic growth rate of global stainless steel consumption is historically at a compounded rate of 5.8%. This rate has been measured for over a 100 years and takes into account all the global calameties over the past century. We are still amids such a crisis period and it is therefore interesting to note that the ISSF forecast for cold-rolled flat products remain stable at around the 140 mark. Given the COVID-19 pandemic and its influence on production and demand in the first quarter of 2020, it shows some resiliency in the market. However, the hot-rolled global forecast indicates large fluctuations. Long products seem to show a similar trend as cold-rolled products. As a result, the forecast for all products is one of growth - with the impact of the hot-rolled fluctuations visible.







Should we bring our view closer to home, the figures for apparent local consumption of stainless steel are shown in the infographic above. The three-month annual comparison, as shown on the left, indicates at 21% increase in production but this must be seen within the context of production having been halted for a period during the early parts of 2020.
The year to year comparison shows a more realistic picture of the impact on local consumption caused by the lock-down restrictions and other COVID-19 related factors during the early part of 2020. All indications are pointing to growth in consumption this year. The question remains whether this will bring industry back to levels seen in pre-pandemic times. It remains possible.



The graph above brings us even closer to home. This is statistics from our monthly Short Track Survey amongst members and key stakeholders in the industry. The confidence levels of Sassda members have sharply increased, from the low (25%) levels recorded a year ago to around 60% for the past three months. Reports are being received of a growing workload in certain sectors of membership.

We would like to be adding to this positive momentum by predicting continued high levels of membership confidence and Sassda would be doing its best to provide opportunities for assistance, learning, and marketing as the most active stainless steel association globally.

Stainless Steel. It's Simply Brilliant.

THE BEST OF THE GPS E-NEWSLETTER

Each month Sassda rounds up a selection of global and local market intelligence articles that are sent to our members in an easy to read package of content. They're designed to highlight pockets of potential growth in demand for stainless steel. Here are some of the best articles from the last few issues.

1. STEEL MASTER PLAN STEPS UP

One of the most important developments in the local steel sector in the last five years - The Steel Master Plan - was signed by The Minister of Trade, Industry and Competition, Ebrahim Patel in June, along with industry stakeholders from the steel and metal fabrication sector including Sassda. The plan provides a blueprint for the industry to re-energise itself and expand production and sets out practical steps to be implemented progressively by all stakeholders across the steel and fabrication value chain. It includes six priority areas namely: Demand-side measures; Supply-side measures; African Continental Free Trade Area Agreement, Transformation, Human Resources and a Shared Vision and; Resource Mobilisation and the Steel Fund.

READ MORE

2. STEEL MASTER PLAN – SASSDA'S PERSPECTIVE

In a recent interview with Engineeringnews.co.za Sassda reported that localisation features prominently in the recently launched Steel Master Plan, and it includes negotiations with mass retailers to source locally manufactured stainless steel consumerware.

Speaking about the localisation of the South African stainless steel industry, Acting Executive Director Michel Basson stated that there are a number of projects with potential for the extensive use of stainless steel in the infrastructure, water supply, sewage and water treatment, food and beverage and health and safety sectors. These projects hold great potential for downstream local stainless steel demand.

READ MORE

3. LOCALISATION PROVIDES KEY GROWTH WINDOW FOR SA INDUSTRY

Small Business Development minister Khumbudzo Ntshavheni says the department is in talks with the Department of Trade Industry and Competition (dtic) to designate more products under the 100% local content category to support SMMEs in the local manufacturing sector. She reports: "We are working with the dtic to designate more products for 100% or 80% local content to minimise the entrance of other products in the country. In addition, we are working with the South African Revenue Service and customs to make sure that those products that are designated for 100% local content are not allowed on our shores to protect local companies."

READ MORE

4. THREE TRENDS DRIVING CHANGE FOR INDUSTRIAL MANUFACTURERS IN 2021

Forbes.com reports that the global pandemic has forced many industries to change course, and industrial manufacturing is no exception. Forward-looking, industrial manufacturers that had already started their digitalisation journey were in a much stronger position during the pandemic. Now, many industrial equipment manufacturers are taking what they've learned from the ongoing crisis and they're investing in new technologies, processes, and business models, to emerge stronger than before and prepared for the next disruptive event.

READ MORE

5. DEMAND SIDE - WHAT ARCHITECTS NEED TO SEE IN MANUFACTURERS' ARCHITECTURAL SPECIFICATIONS

According to Anneke Anker, architectural product specialist for BuildConnect, manufacturers that fail to improve the quality of architectural specifications provided online, risk not being specified in architects' projects. According to Anker, there are seven categories of information that architects require. "Start by providing a product name and description," she explains. "This may include any information that describes the product, such as the thickness, colour or material used. The architect may need a generic specification (compulsory for government projects) which describes the product in detail but excludes the product name."

READ MORE

STAINLESS STEEL A MINING MARVEL

Stainless steel has been used in the mining industry for many generations as it has many characteristics that make it ideal for mining environments. It can be easily fabricated; it is light in weight but also strong and durable; it is resistant to corrosion; it is easy to clean; and finally, it is a very sustainable material. This article from UK-based Special Piping Materials outlines the value this material can add to one of South Africa's most valued industries.

There is an expansive array of advanced equipment and machinery that is required for the mining processes. This equipment needs to be able to withstand harsh environments and be able to perform time and time again. Because of this, stainless steel has been identified by the mining industry as the ideal material to build it from.

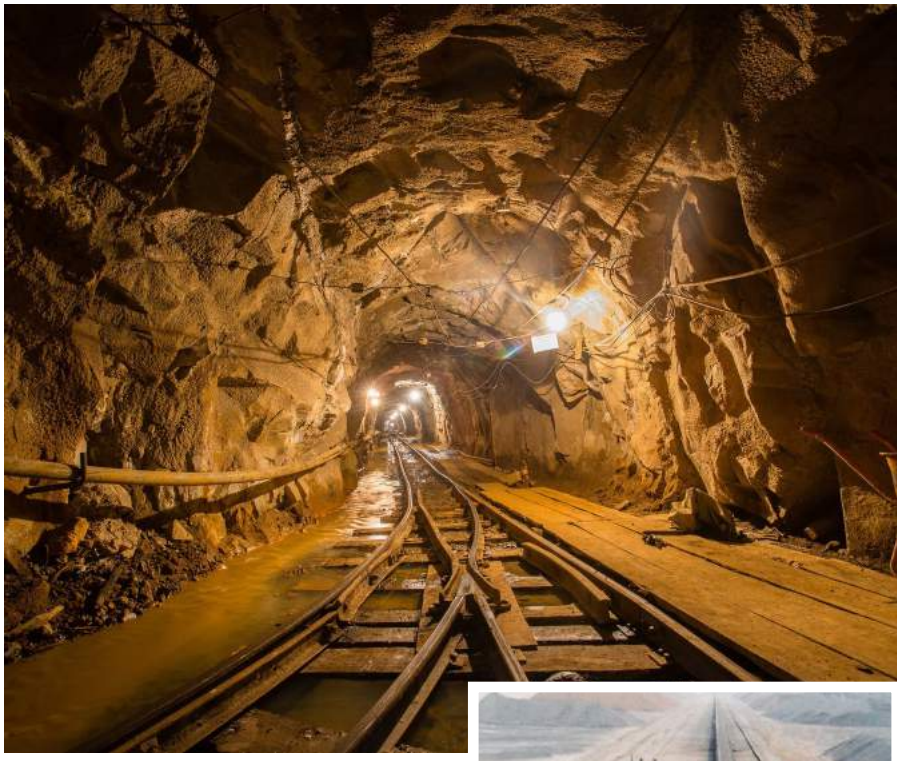
OVERVIEW OF MODERN MINING INDUSTRY

The mining industry is thought to be currently experiencing growth, following a period of instability and market volatility. Automation and operational efficiency are now vitally important if the market is to survive. Companies that adopt new technology and prioritise using efficient progressive processes are more likely to thrive than those that don't.

As mineral resources become scarcer in low-risk mining areas, companies must become proficient in utilising specialised and digital technology to extract minerals in 'frontier' areas.

This technology includes the following advanced process:

- 'In-situ leaching' is a mining process used to recover minerals through boreholes drilled into a deposit.
- 'Block caving' is a method of mining underground that uses gravity to locate ore bodies at depth.
- 'Bio mining' is a breakthrough technique that used prokaryotes or fungi to extract metals from ores and other solid materials.
- Three-dimensional modellin can be used to create realistic impressions of mines that allow the human brain to better comprehend depth perception and therefore, the mine itself.
- Virtual Reality can be used to immerse people into a mining environment and thus better prepare them for the experience or allow them to efficiently plan a new mine.



- Augmented Reality is a technique that overlays a digital visualisation onto a real-world environment. It can be used within the mining industry to train miners and subsequently reduce maintenance and training costs.
- Geographic Informational Systems allow the mining industry to obtain geospatial data that allows miners to gain insight into a specific mine environment. It can provide data on mineral exploration, geochemical and hydrology data and even sustainability and regulatory compliance.

APPLICATIONS OF STAINLESS STEEL IN THE MINING INDUSTRY

Stainless steel and duplex stainless steel are widely used in the mining industry due to their fantastic properties and benefits, namely their low cost, high strength, lightweight, ability to resist corrosion, durability, and sustainability. Interestingly, stainless steel is also known for being easy to clean due to its smooth surface and it is consequently used to store substances as it reduces the risk of contamination.

Stainless steels are incredibly versatile and can therefore be used for many different applications such as:

- Tools
- Drill rigs
- Demolition equipment
- Grinding media
- Mining screens
- Fluidised bed boilers
- Pumps
- Heat exchangers
- Vessels
- Pipes
- Tanks
- Cathode plates
- Mass excavators
- Bulldozers
- Shovels
- Crushers
- Workbenches

Many structural components at mining sites are also built from stainless steel. There is a growing demand for duplex steel in this environment. It has a higher strength than carbon steel and an extremely high level of corrosion resistance.

HOW STAINLESS STEEL HELPS TO REDUCE THE ENVIRONMENTAL IMPACT OF MINING

With the majority of countries around the world looking to decarbonise their energy systems and transition to low-emission renewable energy sources, a great opportunity has arisen for the mining industry. This is because low-emission energy and transportation systems are more mineral-intensive than their fossil fuel-based counterparts.

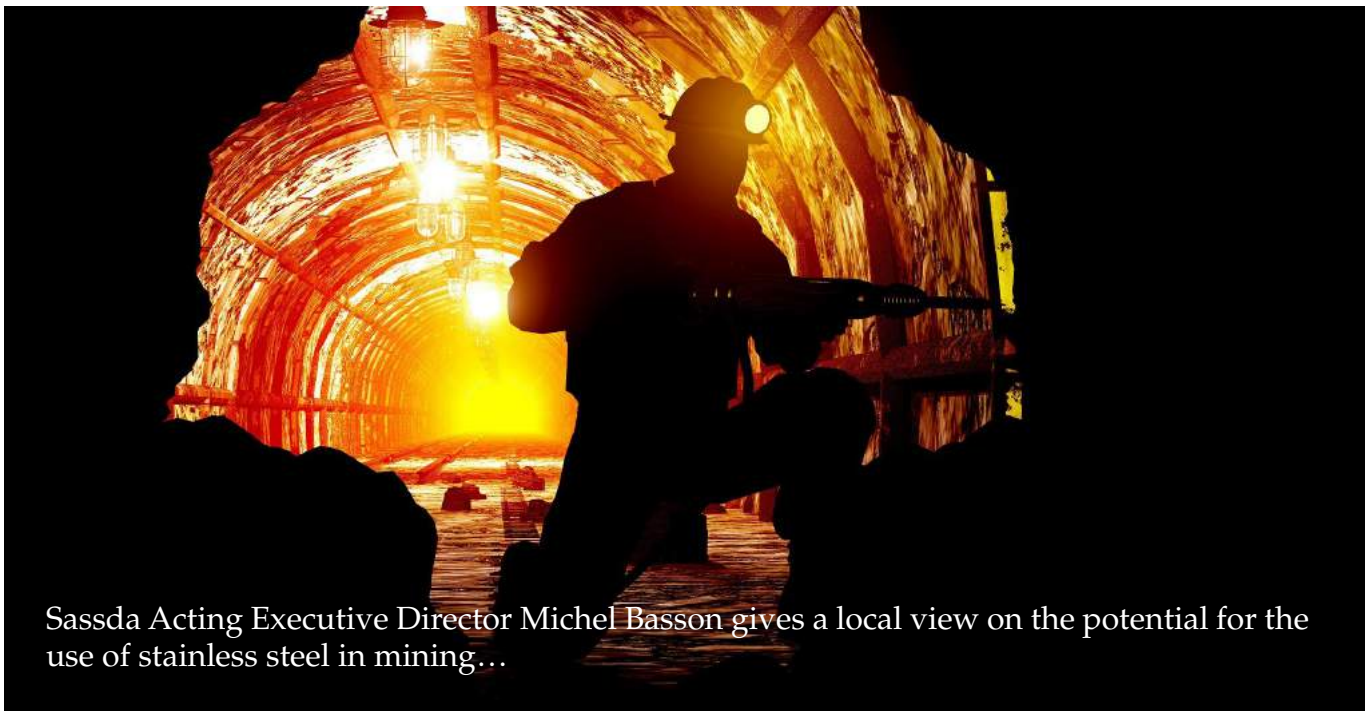
The mining industry must also ensure that it does everything it can to reduce its emissions. Mining companies are increasingly prioritising new systems that will help them do this. Power operations and fleets from renewable energy sources such as electric or hydrogen. This can be done while integrating robust recycling systems into their supply chains.

Efficient ore-processing practices can also help to limit the environmental impact as they reduce the volume of material that has to be transported and processed by potentially hazardous thermal and chemical refining methods. Stainless steel's strength and ability to resist corrosion makes it the ideal material for pumps, screens, filters, and other equipment that is used in the processing of mineral ores and concentrates.

Further to this, stainless steel is theoretically 100% recyclable and has an extremely long life, even in harsh environments. When the end of life is reached by stainless steel, it can also be an extremely useful recyclable product. In addition, the main alloying elements in stainless steel – chromium, nickel, and molybdenum – are highly valuable and can be efficiently separated and then reused.

**Reproduced courtesy of Special Piping Materials UK (www.specialpipingmaterials.com/stainless-steel-and-the-mining-industry)*

SASSDA'S VIEW FROM THE 'COALFACE'



Sassda Acting Executive Director Michel Basson gives a local view on the potential for the use of stainless steel in mining…

Q. What is the traditional use of stainless steel in the South African mining sector and which specific grades are best suited to this application?

A. Traditional uses would be in corrosive and mining process environments areas such as water treatment, chemical treatment and structural (3CR12) was originally developed for the mining industry.

Q. Please could you elaborate on why this grade is recommended – does the cost outweigh the benefits?

A. 3CR12 has proven itself in various case studies to be in the order of 50% more cost-effective than coated mild steel over the full product lifespan. We can now calculate in tangible terms what these cost savings can be.

Q. Where does the greatest potential lie for the use of stainless steel within new applications in the mining sector?

A. Through LCC stainless steel shows itself to be in theory a cost-effective alternative in virtually all mining applications. Future areas for growth would be in water treatment, water bulk storage, and water transfer.

Q. Why do these hold the greatest potential. Is stainless steel currently under-utilised there?

A. Even though stainless steel is used where there is no alternative, it is believed that the life cycle cost benefits associated with effective material grade selection create huge scope for stainless steel usage to grow in the mining sector. The utility grades have large potential in structural applications and areas with corrosion-induced wear.

Q. Is Sassda working with any other entities to champion/further the use of stainless steel in the mining sector?

A. We are currently in the planning stages of a CPD accredited half-day workshop on grade 3CR12. Focused on fabrication and applications, it would be hosted throughout Africa in collaboration with the SAIW. The continental mining sector will be targeted. Sassda has three other training products that would apply to the sector: The Fundamental Course, Stainless Steel in Corrosive Conditions and Stainless Steel in Drinkwater Applications.

Q. What opportunities are there for stainless steel usage beyond South Africa's borders in other African mining projects. Please provide a list of these countries?

A. There are currently eight countries in Africa that have come together to form the Welding Federation Africa. The SAIW is the driver for this collaboration. The countries currently committed are:

Ghana
Ethiopia
Kenya
Mozambique
Egypt
South Africa
Nigeria

For more information visit www.weldfa.org

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SMALL CAN BE SMART IN STAINLESS STEEL

Sassda Acting Executive Director, **Michel Basson** recently participated in an event hosted by the South African Small and Medium Enterprise Development Council where Sassda was asked to participate as a panel member to discuss the topic of 'Economic Recovery and Sectoral Master Plans'. Here is a selection of questions and answers posed during the session relevant to our industry sector…

Q. If you have a master plan, has it been implemented yet and if yes, how has it been taken up by SMMEs?

A. The Steel Master Plan was signed on 11 June 2021, so it is still relatively new. The positive news is that it aims to streamline supply chain upwards from the fabricator and develop a demand side for steel and products of local origin. During the pandemic, many of our larger fabricator members were forced to downscale on employment numbers and as such, a number have moved from the member category of medium to small/micro-enterprises. That said, we do see opportunities for our SMME members in the Steel Master Plan, especially on a renewed drive for local content and localisation in general. We believe that the successful implementation of the Steel Master Plan will depend on the efficiency of industry associations to assist government by preparing their members to take part in its implementation and ensure that pertinent information reaches the relevant stakeholders. Sassda is ready to assist the rollout of the various initiatives in this regard.

Q. How could these master plans be implemented in rural and informal areas?

A. This is exactly where associations will play a crucial role in identifying, communicating, and connecting smaller members and rural members to the relevant bits of the Steel Master Plan. Like government, associations see the bigger picture. However, associations have of a better understanding of the plight and requirement of the smaller members. It is therefore our stance that stronger support from government to associations will be key to the efficient implementation of any Steel Master Plan initiatives.

Q. Is enterprise development featured amongst your members? Is it working? What is needed to achieve?

A. Enterprise development remains a goal of Sassda and its members. However, our members and ourselves can only be world-class through continuous improvement. We therefore constantly urge our members to improve "holistically", meaning improvement not only in technical capacity and skill, but also in efficiency, profitability, and sustainable, ethical business practices.

Q. Is there enough support to facilitate access to markets? Any ideas what can be done to assist SMMEs to market?

A. Creating downstream demand for products is a major part of the Steel Master Plan. However, creating downstream demand is not good enough. Our fabricators and suppliers must develop in a manner that allows them to be globally competitive and export-ready. Once again, this is a 'background' issue that can be effectively addressed by industry bodies given the resources and mandate by government.

Q. Do you think blacklisting of small business owners is justified when external factors like government policy, market changes and catastrophic global events such as the COVID-19 pandemic happen?

A. This is a question with no simple answer. In some cases, blacklisting is justified when there was a contravention of legal and ethical rules. Other cases might have different causes like non-compliance or legal issues beyond the control of the business. In these cases, assistance can be given, but we must be careful not to throw good money after bad. Assist where assistance will yield the required results - not all businesses are viable.

Q. Could insurance or a dedicated fund assist with this?

A. Potentially, if administered and used in a planned and pragmatic way to the benefit of the industry and national goals.

Q. We always hear about red tape. Do you have any practical examples where your SMMEs are experiencing this bottleneck?

A. Red tape should be limited wherever possible but will remain with us for some time to come. The intervention of associations in this regard can assist members since associations are facilitators. On the positive side, members report that the Western Cape provincial government is currently good at eliminating red tape in the province, so positive case studies do exist. Tax registration for new companies offers some challenges like various other bureaucratic regulations. It remains the role of associations to bring this to government's attention and lobby for a mutually accepted solution.

Q. Do your SMMEs feel that they are truly supported (e.g., licencing, permits, small tenders) by the various government departments that they need to engage with?

A. No, especially international accreditation which is an expensive issue for our fabricator members. Some innovative action can be applied to limit costs and facilitate our members becoming certified as global suppliers of quality and cost-effective products. There is space in the Steel Master Plan to address issues like this.

Q. Do SMMEs feel that certain sectors are being overlooked now in the early days of vaccine rollouts?

A. Most likely. Like medical staff and teachers, other groups exist as high risk areas. Salespoint staff at retailers, sales staff, petrol attendants and any persons interfacing with the broader public are exposed to risk. Many of these groupings are overlooked.

Q. What is uppermost on your members' minds? Any comments from the ground?

A. Our members would like a clear plan and effective rollout. This is where associations must become both facilitators and translators between ground level business and government. This is a crucial role and assistance should be channelled through proper association structures to the maximum benefit of the economy.

case study

A GUIDE TO LIFE CYCLE COSTING ANALYSIS

Most users, especially fabricators, of stainless steel will know it is an alloy of mainly iron and chrome that makes stainless steel suitable for virtually any application.

However, we often find ourselves with a potential customer that resists stainless steel based on the initial purchase price of the material. We cannot argue this fact, but we also accept that you must dig deeper in your pocket for lasting quality. We accept this fact when buying a house, a car, or a microwave so why not when choosing the best material for a product or project?

HOW LIFE CYCLE COSTING IMPACTS SUSTAINABILITY

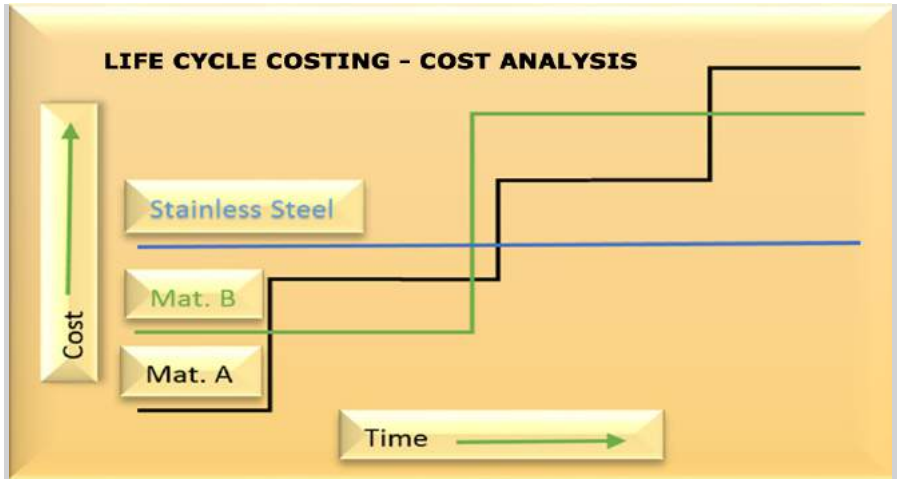
To achieve this optimum selection, it is imperative to use the process of Life Cycle Costing (LCC). This provides a method of assessing the costs that occur throughout a project's lifespan, from raw material procurement, fabrication, and construction, through use and maintenance, to end-of-life. In so doing, it gives a more robust insight into long-term costs and savings, compared to ROI-based calculations.

The full cost of a project would include projections for items such as:

- future rates of interest and inflation;
- designed or expected maintenance intervals and costs (both material and labour);
- desired service life.

When assessing materials, costs consideration should be given to long- and short-term factors such as:

- initial investment;
- maintenance level and frequency;
- downtime effects;
- production losses, repair, replacement; and
- other operationally related costs such as manpower and energy consumption.



The manner in which the calculation of the total Life Cycle Costing is formulated allows for all associated future costs to be calculated and expressed in present value monetary terms as a comparative benchmark.

LCC uses the standard accounting principle of discounted cash flow. Costs of maintenance and associated downtime can outweigh the initial material costs. From a sustainability viewpoint, it makes sense to calculate a full life cycle cost assessment. LCC is the sum of the acquisition cost, initial fabrication and installation costs, operational and maintenance costs, lost production due to downtime, as well as replacement costs. However, at the end of the project life, all material involved and still available can be retrieved for reuse or recycling. The value of this can therefore be subtracted from the total cost.

$$LCC = AC + IC + \sum_{n}^{N}\left(\frac{OC}{(1+i)^n}\right) + \sum_{n}^{N}\left(\frac{LP}{(1+i)^n}\right) + \sum_{n}^{N}\left(\frac{RC}{(1+i)^n}\right) -$$

(end of life scrap value)

When using stainless steel, the end of life value becomes very important. In architectural installations, it is estimated that around 92% of the original material will be available for recycling. In the case of coated carbon steel or galvanised installations, this figure is closer to 68%. Therefore, our industry can proudly say that more than 75% of all new stainless steel material comes from recycled sources.

CASE STUDY 1: THE RESIDENTIAL FENCE

A middle income family needs to install a security fence with the following options:

1. A carbon steel construction to be powder coated.
2. A 3CR12 construction to be powder coated.
3. A 3CR12 construction with no coating and allowed to age naturally

The Sassda LCC application yields the results shown below. The highlights being that the uncoated 3CR12 version will be 68% lower in cost over the 15 years life span. Even if the 3CR12 is powder coated it would still be 30% less expensive than the coated carbon steel version.

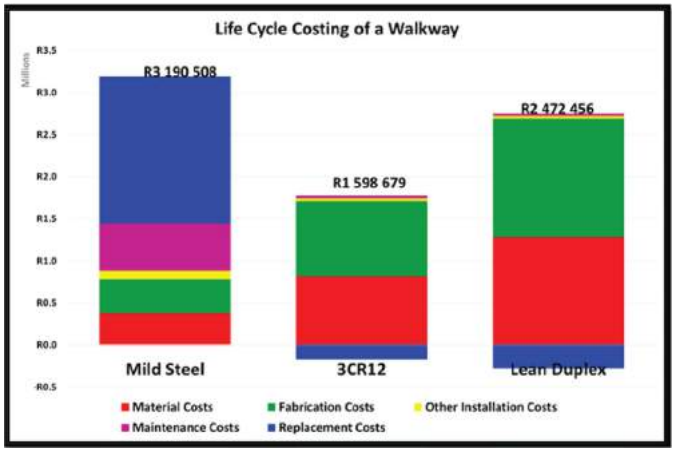
Description	Steel Painted	3CR12 coated	3CR12 uncoated
Material costs	1620	2100	2100
Fabrication costs	660	870	870
Other installation costs	2304	2250	0
Initial costs	**4584**	**5220**	**2970**
Maintenance	4022	1074	0
Replacement	0	-250	-250
Lost production	0	0	0
Material related	0	0	0
Operating costs	**4022**	**824**	**-250**
Total LCC	8606	6044	2720

30% 68%

Mild steel:
Mass = 78kg;
Material costs = R1620;
Powder coating = R2340;
Fabrication costs = R540;
Installation costs = R120;
Maintenance painting = R1404;
Maintenance period = 3-year,
Scrap value of R0 per panel

3CR12:
Mass = 75 kg;
Material costs = R2100;
Powder coating = R2250;
Fabrication cost = R750;
Installation costs = R120;
Maintenance painting = R375,
Maintenance period = 3 years,
Scrap value of R500 per panel

CASE STUDY 2: THE HYDROMETALLURGICAL WALKWAY



At a hydrometallurgical plant in Chile material must be selected for a walkway across corrosive areas in the plant. The service life is 30 years, and three possible material types are suggested for use:

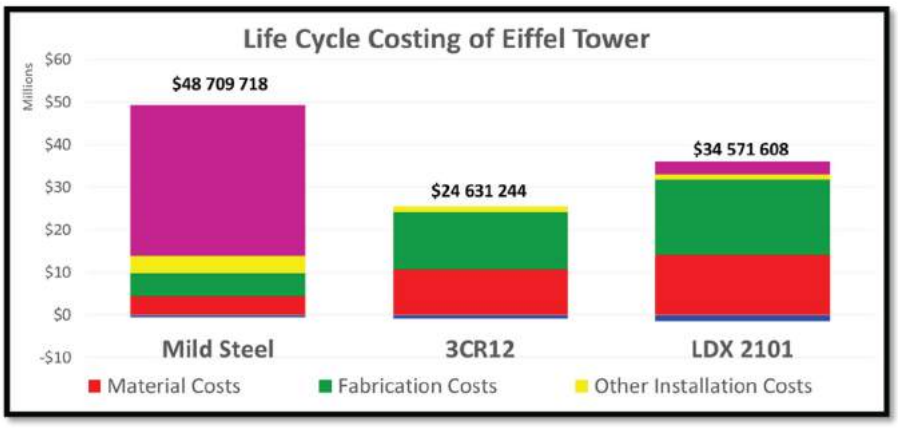
1. Mild steel – The cheapest option, but requires maintenance on the protective surface every four years.
2. 3CR12 – Unpainted. Surfaces cleaned every 15 years with high-pressure water.
3. Lean Duplex – Expensive material but with exceptional mechanical and corrosion characteristics. Therefore, the material can be gauged down, meaning a reduced initial material cost.

Once again, the results favour the use of 3CR12 showing a 50% reduction in life span costs compared to the mild steel option. Even the Duplex grade displays a reduction of 23% compared to the mild steel option. Take note of the impact of the end of life value.

CASE STUDY 3: THE EIFFEL TOWER

Imagine you need to reconstruct the Eiffel Tower with a design life of 100 years with the following options: once again 3CR12, a duplex 2101, and painted mild steel which is the material used on the existing tower. The 3CR12 will be allowed to form a surface patina with no maintenance required. The duplex will be maintained with a high-pressure waterjet every 20 years.

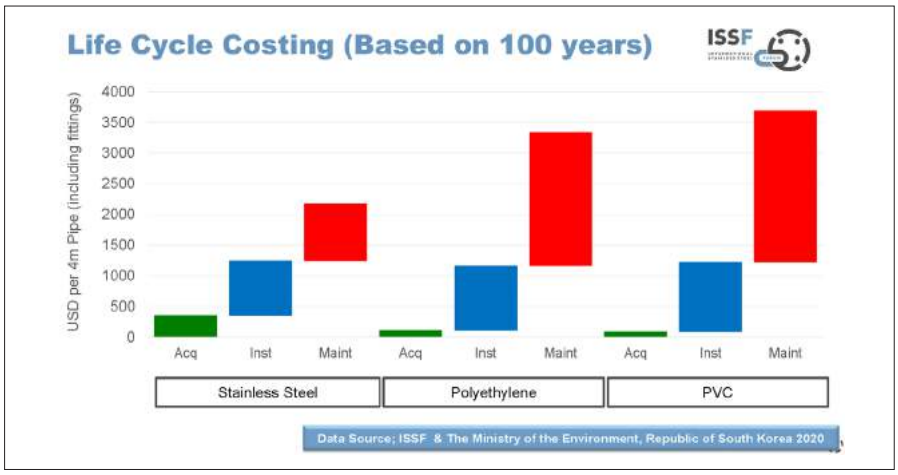
It is no surprise that the life cycle cost of the 3CR12 option is around 50% of the mild steel cost. The Lean Duplex version registers at around 77% of the mild steel cost.



CASE STUDY 4: DRINKING WATER SOLUTIONS

The first three case studies showed the cost efficiency of stainless steel, especially 3CR12 against competitor materials. Stainless steel competes well against specific plastics used in drinking water applications as shown by ISSF studies.

The life span used in this exercise is 100 years and based on the US$ costs per 4m of installation pipework including fittings. This compares stainless steel, polyethylene, and PVC. Stainless steel was calculated to cost $2172 per 4m length, polyethylene costs $3340 and PVC $3690 for the same length.



STAINLESS STEEL REMAINS SIMPLY BRILLIANT

In all applications stainless steel shows substantial Life Cycle Costing benefits.

A - Acquisition Costs: Stainless steel contains more than 70% recycled material.

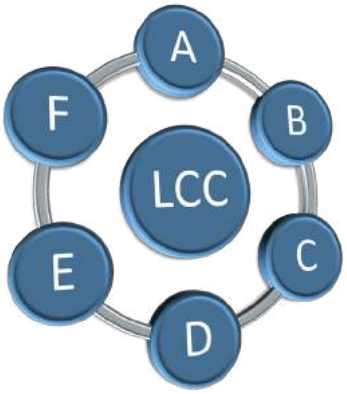
B - Fabrication and Installation: Stainless steel offers ease of fabrication and the mechanical properties allow for lighter structures.

C - Operational Costs remains lower due to its durability.

D - Lost production Costs: The durability of stainless steel has less downtime and the reduction of related costs.

E - Maintenance Costs: Less downtime means lower maintenance costs.

F – Recycling: Due to the high end of life material recovery rate, there is implied savings. Stainless steel is 100% recyclable.



GLOBAL ISSF AWARDS SEE LOCAL STAINLESS TRIUMPH

The ISSF New Application Awards 2021 have been announced with two South African companies recognised for their innovative stainless steel technologies best practice, market development, safety, and sustainability. Columbus Stainless scooped Gold with its innovative and ecofriendly Amalooloo sanitation technology; followed hot on the heels by Outokumpu with Silver for its Stilride Electric Scooter demonstrating the industrial origami technique.

The Amalooloo, developed from reclaimed 3CR12 is an ecofriendly and affordable sanitation system that eliminates toxic sludge, the leading cause of sanitation disease and death in rural South Africa, to deliver a dry composting system that results in an organic fertiliser byproduct.

As a patented and unique option for both Waterborne and Dry (Ventilated Improved Pit) structures, the Amalooloo system works via a holistic sanitation loop that collects solid organic waste material in a specialised bottom substructure, where it undergoes primary and secondary drying processes unique to its state-of-the-art ventilation; guaranteeing an odour and fly free sanitation system it is able to produce recycled organic, safe, and nutrient-rich fertiliser as a byproduct.

Constructed out of precast reinforced concrete, all components are bolted together using stainless steel 304 fasteners and anti-theft bolts, with the doors, door frame and metal trims made from 3CR12 for rigidity to house the critical locking mechanisms that ensure privacy and safety for its users.

COST EFFICIENT VALUE CHAIN

Demonstrating an innovative way of processing metallic flat sheet material into complex geometries via industrial origami, Outokumpu was recognised in the New Application Awards when they took home Silver for their Stilride Electric Scooter.

An original application of stainless steel, the scooter demonstrates the potential to create a new cost-efficient value chain in mobility with a reduced need for joining, delivering cleaner energy and lower maintenance and lifecycle costs.

Products, where flat sheet steel is used as input material, are often formed through roll forming, deep drawing, hydroforming, etc., then joined together using various joining techniques. Such techniques require investments in pressing tools and large machinery which often only pays of when very high-volume products are manufactured. Challenging the traditional view of manufacturing, Stilride takes advantage of the ancient origami technique to open up for complex designs by simply folding the sheet into amazing 3D structures. This will reduce the number of parts and the need for joining, create clean-energy powered personal mobility device.

To maximize weight reduction, potential high strength stainless sheet material was chosen as the main construction material which meant challenges had to be overcome relating to the folding of very high strength stainless steels. A methodology to locally heat-treat the folding lines with laser was applied within the project; with the prototypes of the Stilride electric scooter now available to showcase.

BOTSWANA AN ECONOMIC SUCCESS STORY

Botswana is a development success story. A small, landlocked country of just over two million people, Botswana was one of the poorest countries in Africa with a per capita gross domestic product (GDP) of about $70 when it gained independence from Britain in 1966. In the years that followed, supported by the discovery of diamonds, Botswana has been one of the fastest growing economies in the world and moved into the ranks of upper-middle income countries. Real GDP showed robust growth of an average of 5% per annum over the past decade.

Until the beginning of the global recession in 2008, Botswana maintained one of the world's highest economic growth rates since its independence in 1966. Botswana recovered from the global recession in 2010, but only grew modestly until 2017, primarily due to a downturn in the global diamond market, though water and power shortages also played a role.

Through fiscal discipline and sound management, Botswana has transformed itself from one of the poorest countries in the world five decades ago, into a middle-income country with a per capita GDP of approximately $18 100 in 2017. Botswana also ranks as one of the least corrupt and best places to do business in Sub-Saharan Africa. Approximately 71% of the population of 2.3 million are urbanised and the literacy rate stands at 88.5% of the population.

The country has a mature democracy, with free and fair elections held regularly and the constitution provides for fundamental rights and freedoms.

The Botswana Democratic Party (BDP) has been in power since the first elections were held in 1965. The BDP won the 2014 general election, and Lieutenant-General Seretse Khama Ian Khama was sworn in as President for a second term

DIAMONDS ARE FOREVER

Due to its heavy reliance on diamond exports, Botswana's economy closely follows global price expansion and currently accounts for one-quarter of GDP, approximately 85% of export earnings, and about one-third of the government's revenues. In 2017, diamond exports increased to the highest levels since 2013 at about 22-million carats, driving Botswana's economic growth to 4.5% and increasing foreign exchange reserves to about 45% of GDP.

De Beers, a major international diamond company, signed a ten year deal with Botswana in 2012 and moved its rough stone sorting and trading division from London to Gaborone in 2013. The move was geared to support the development of Botswana's nascent downstream diamond industry.

The four largest export partners are Belgium (20.3%), India (12.6%,), UAE (12.4%) and South Africa (11.9%). In terms of imports, the largest trading partner by far, is South Africa (66.1%).

The major industries and commodities of Botswana include the following: diamonds, copper, nickel, salt, soda ash, potash, coal, iron ore, silver, livestock processing and textiles. In terms of sector breakdown, agriculture is 1.8%, industrial 32.9% and services 65.3%.

OPPORTUNITIES

- Manufacturing - Botswana employs more than 35 000 workers and is growing steadily since the early 2000s. The main manufacturing process involves the production of goods and services mainly for export purposes which is due to the abundance of available raw materials.
- Energy sources - Botswana has limited energy sources and relies on imports of electricity and petroleum products. There is currently a deficit in power supply in Southern Africa and plenty of opportunities for doing business in Botswana by using solar and coal to generate power for domestic as well as export purposes. Currently, the energy resources are:
  - o Coal Energy - the current coal energy can generate up to 90MW and will be decommissioned by 2021 and new coal plants have been commissioned which can generate 3000MW of power and will be constructed in small units;
  - o Solar Energy - solar power generates up to 200MW, (end 2020) and currently needs donors to support this initiative. There are many opportunities to set up solar farms to supply and balance the current deficit.
- Agriculture - The agriculture industry is important in Botswana and with current national developments, the agriculture sector is decreasing in terms of GDP with the need to increase production and promote investments in the agro-industrial and supply chain developments.
- Mining - The mining sector contributes to nearly 24% of GDP in Botswana and is one of the key industries in the country. The industry has plenty of opportunities which include the expansion of existing mining projects as well as improving the value chain benefits.
- Automotive - Botswana is home to the growing automotive market due to the increase in demand by the African people. The agriculture industry will also grow with the increasing developments in the automotive industry which has mainly to do with logistic issues.

NAMIBIA A SPARKLING OPPORTUNITY

Various ethnic groups occupied south western Africa before Germany established a colony over most of the territory in 1884. In 1915 during World War I, South Africa occupied the colony, then known as German South-West Africa and administered it as a mandate until after World War II, when it annexed the territory. In 1966, the Marxist South-West Africa People's Organisation (SWAPO) guerrilla group launched a war of independence for the area that became Namibia, but it was not until 1988 that South Africa agreed to end its administration in accordance with a UN peace plan for the entire region.

Namibia gained independence in 1990 and has been governed by SWAPO since, though the party has dropped much of its Marxist ideology. President Hage Geinob was elected in 2014 in a landslide victory, replacing Hifikepunye Pohamba who stepped down after serving two terms while SWAPO retained its parliamentary super majority in the 2014 elections. In the 2019 elections, Geinob was re-elected but by a substantially reduced

majority and SWAPO narrowly lost its super majority in parliament.

ECONOMY

The Namibian economy is heavily dependent on the extraction of minerals for export. Mining accounts for about 12.5% of GDP but provides more than 50% of foreign exchange earnings. It is also one of the world's largest producers of Uranium. The Chinese owned Husab uranium mine began producing uranium ore in 2017 and reached full production in August 2018.

Rich alluvial diamond deposits make Namibia a primary source of gem-quality diamonds. Marine diamond mining is increasingly important as the terrestrial diamond supply has dwindled.

Real GDP : -1.02% (2017 est.); 1.13% (2018 est.) and -1.56% (2019 est.).

The Namibian population is estimated to be 2.6 million of which 52% are urbanised, with a literacy rate of 91.5%.

In terms of exports, the country's main exporting partners are South Africa, Botswana and Switzerland with 61.4% of imports coming from South Africa. In 2017 these had an estimated value of $5.38-Billion.

OPPORTUNITIES

The Namibian government and private sector are seeking partners in realising identified viable projects and business opportunities on a mutually beneficial basis. There are various partnership options which include direct private investment, financing, joint ventures, and public-private partnerships.

There are many opportunities in the mining sector as there are extensive mineral deposits, which include diamonds, uranium, gold, copper, lead, zinc and other base metals.

Value addition is encouraged and the government has an incentive package for new manufacturers as well as good prospects for oil and gas prospecting, exploration and processing.

Other opportunities include:

- Manufacturing of automotive components;
- Steel manufacture;
- Manufacturing of pharmaceutical products;
- Downstream processing of gas;
- Development of hotels and restaurants.

NAMIBIAN TRADE FORUM

The Namibia Trade Forum (NTF) is an agency of the Ministry of Trade and Industry whose main mandate is to institutionalise public-private dialogue and cooperation, with an emphasis on international and domestic trade and investment policies as stipulated by the Fourth National Development Plan. The role of the NTF is to act as the main consultative body representing private sector views to the government. It thus serves as the highest public-private partnership on international and domestic trade, as well as investment matters of government. This is facilitated through workshops, seminars, trade negotiations, meetings and media releases. It currently has four committees on agriculture, manufacturing, services and fisheries that support the work of the NTF.

More information on the NTF can be found here www.ntf.org.na

PROFESSIONAL KNOWLEDGE & A VISION OF GROWTH

The greatest strength of the South African stainless steel sector is undoubtedly its people, who believe in the material's ability to enhance and sustain the South African economy, no matter how onerous the challenges it faces. For this reason, we continue our profile series on passionate stainless professionals who embody the bold spirit and forward-thinking who will shape our industry for many years to come. In this issue, we speak to Air Liquide National Business Developer, **Mwali Kawawa…**

Why did you decide to study metallurgical engineering followed by a Bachelor of Science and what was it about these disciplines that attracted you to this field of study?

During my school days, I always found the subject of science intriguing, particularly chemistry and the building blocks of matter. As a child, I was privileged to own a few bicycles and thoroughly enjoyed taking them apart and modifying them; at one stage I rode a BMX with altered spoke wheel rims, fitted with a fixed Gear Bike's handlebar stem and a stereo! To this day I have a thing for creating and building various items and thoroughly enjoy domestic improvement DIY projects in my spare time. I figured Material Science would be a good starting point, so post school I completed a Bachelor of Technology degree in Metallurgical Engineering, thereafter a post Bachelor of Science Honours degree in Welding Technology.

How did the first years of your career build on what you learnt at university but in a more practical setting? What were the key lessons you learnt during this time?

I started my career in 2007 working as a trainee metallurgist at a metallurgical testing laboratory under the mentorship of one of the distinguished South African

"Hopefully, successful implementation of the recently approved "South African Steel and Metal Fabrication Master Plan 1.0" will help unlock stagnant projects and create opportunities for business and employment."

pioneers in this area which exposed me to the various methodologies of material science, evaluation and analysis. The majority of the projects I worked on during this time were related to either weld testing or attributed to an in-service failure of metallurgical material in various modes; including corrosion, fatigue and embrittlement.

This role involved extensive research by gathering background information, mostly from metal handbooks and materials from the library on topics for industrial applications. I also enjoyed hands-on sample preparation and physical testing in the laboratory. I learned how to structure technical reports and used knowledge from both my university training and research to analyse the results and formulate recommendations/conclusions. This taught me how to investigate any topic thoroughly and make propositions based on observations and aligning this to credible discoveries by industry peers.

In recent times, the advent and growth of the internet have simplified this approach immensely and virtually any content can be discovered just by clicking a button. It is no longer necessary to spend hours looking for reliable books in the library.

How and when did you then enter the stainless steel industry?

Since stainless steel is most widely used for corrosion-resistant applications, I have been involved with this metal alloy since the beginning of my career. The earliest memory I have in dealing with a stainless steel material application was for the refurbishment of continuous casting rolls used in casting machines wherein the rolls were clad with a martensitic stainless steel surface. To allow for bending and flexibility of the rolls, the high-temperature corrosion resistant cladding was welded in multiple layers upon a carbon steel core. In some way, this also introduced me to the welding industry whereby stainless steel structures, for example, pressure equipment, railing and food processing equipment, are all predominantly fabricated by welding of the stainless steel material.

"South Africa has abundant mineral resources for beneficiation by creating products for promotion in both domestic and export markets."

How would you describe a typical day in your current position?

My current role involves both technical and commercial aspects for identifying, developing and promoting the various welding and cutting offers and technologies available at Air Liquide. The exposure across the entire value chain is broad and dynamic and I continue to learn new things about the industrial gas applications industry daily. From product development to raw material sourcing and production of industrial gases, it's all in a day's work. Within the Group there is a global network of expert domains available to facilitate exploration, information sharing and mentoring. This aids me in tackling challenges as they arise.

Why do you feel that stainless steel has such an important role to play in getting South Africa's economy back on track following the COVID-19 pandemic?

I think stainless steel is a multifaceted material with great potential for further innovation and development. South Africa has abundant mineral resources for beneficiation by creating products for promotion in both domestic and export markets. There are a lot of emerging semi-skilled, skilled and professional people eager to contribute positively to the country's economy. The COVID-19 pandemic has negatively affected all economies. Hopefully, successful implementation of the recently approved "South African Steel and Metal Fabrication Master Plan 1.0" will help unlock stagnant projects and create opportunities for business and employment. I think stainless steel is widely used in infrastructure for various industries and will surely experience growth in the coming years.

What do you consider as the most exciting innovation/product developments happening in stainless steel right now and what sectors hold the greatest potential for the use of stainless steel in the future?

I think there is a global focus on achieving the objectives of the Paris Agreement. The resultant emerging renewable energy projects have produced some fascinating developments, especially the use of hydrogen as a fuel for transportation. There is always a stainless steel grade to be found for use across all conditions, from cryogenic, ambient to higher temperature applications. This makes the material versatile and adaptable for the various components required for engineering hydrogen's production, consumption, and storage structures.

training overview

SASSDA TRAINING INFORMATION 2021

Below is a description of the various training products Sassda currently has to offer. All products have the flexibility to be offered online or in a physical class environment. Due to Covid restrictions our more interactive products have been placed on hold but can still be offered within the correct and safe environment. For more information on any of these products or if there is a special requirement, please contact **Mankabe More,** our Training Manager, at **mankabe@sassda.co.za.**

INTRODUCTION TO STAINLESS STEEL

ABOUT THE COURSE

This course is a self-paced, convenient, and easily accessible e-learning programme offering a basic understanding of stainless steel. The target audience is all newcomers and non-technical personnel involved with activities in an organisation that directly or indirectly liaise or interface with customers or are in contact with stainless steel such as administrators and buyers, procurement, marketing, sales, warehouse, etc.

After attending the course, the learners should be able to:

- Know the history of stainless steel.
- Know who Sassda is and what its role is.
- Have a basic understanding of what stainless steel is in the different grades and its different uses.
- Understand why stainless steel is specified (benefits).
- Understand the basic properties of stainless steel.
- Know how stainless steel is produced.
- Know how to handle and maintain stainless steel.

FUNDAMENTALS OF STAINLESS STEEL COURSE

ABOUT THE COURSE

This is an intermediate course aimed at people who have acquired a basic understanding of stainless steel through workplace experience and/or from completing the Introduction to Stainless Steel e-learning course. The target audience would include newcomers to the industry, as well as persons requiring more in-depth knowledge of stainless steel, such as salespersons, supervisors, managers, specifiers, and end-users.

The course runs every week for three weeks from 08h30 to 11h30

ABOUT THE COURSE

- 07 September, 14 September & 21 September
- 02 November, 09 November & 16 November

MODULES

- Session 1: Module 1 and 2 – History and Basics of Stainless Steel
- Session 2: Module 3 and 6 – Corrosion and Handling
- Session 3: Module 4 and 5 – Mechanical, Physical Properties and Manufacturing

After attending the course, the learners should be able to:

- Gain awareness of Sassda and the role it plays in the industry.
- Understand what makes stainless steel unique.
- Understand the basic advantages and classifications of stainless steel.
- Identify the main classifications of stainless steel as well as the basic grades, composition, properties and uses of each.
- Understand the principles explained in the "Spider Web".
- Identify the top 20 alloys.
- Know what corrosion is, differentiate between the different types of corrosion, how each type affects stainless steel and how to avoid it.
- Know the difference between the type, form, and finish of stainless steel.
- Become familiar with South Africa's primary producer's manufacturing process.
- Understand the difference between flat & long products, castings, and tube & pipe.
- Identify different types of stainless steel contamination.
- Understand how to restore the passive layer.
- Learn how to clean, store, and maintain stainless steel.

Once learners have attended the course, they will be required to complete an assessment to obtain a certificate. The assessment will be available either electronically (online) or the learner must arrange to complete their written assessment with the facilitator.

The course is approved by and carries 1 CPD point from SAIMechE.

ADVANCED STAINLESS STEEL COURSE

(This course is currently not available due to Covid restrictions)

ABOUT THE COURSE

This is an intensive course on stainless steel for people who require an advanced understanding of stainless steel and have completed the Fundamentals of Stainless Steel course.

The targeted audience is any person requiring in-depth knowledge of stainless steel such as salespersons, sales managers, specifiers, engineers, workshop managers, end-users, etc.

After attending the course, the learners should be able to:

- Understand the thermodynamics and kinetics of the manufacturing process.
- Understand the metallurgy of stainless steel including phase and transformation diagrams.
- Understand the types of corrosion with emphasis on gaseous and dry corrosion through case studies.
- Understand the mechanical properties of stainless steel with emphasis on fatigue, creep, and work hardening.
- Know about stainless steel forming and machining.
- Predict weld microstructure.

The course includes a mill visit to Columbus Stainless. The course is approved and carries 1 CPD point from SAIMechE.

HANDLING OF STAINLESS STEEL IN THE WAREHOUSE

(This course is currently not available due to Covid restrictions)

ABOUT THE COURSE

This course introduces employees to stainless steel best practices in the workshop and warehouse when handling and storing stainless steel. The target audience would include persons exposed and working with stainless such as warehouse and shop floor staff, forklift drivers, packers, etc.

After attending the course, the learners should be able to:

- Understand what stainless steel is, what makes it stainless", the different grades, common uses, and the basic properties of stainless steel.
- Understand best practices in the warehouse when storing and handling stainless steel.
- Understand the segregation of stainless steel and the benefits of the colour coding chart in the warehouse.

PROFESSIONALS-OF TOMORROW TRAINING

Sassda has developed a 1-hour training presentation to support the technology curriculum of Primary Schools pupils in grades 6 and 7. It includes topics such as:

- What is Stainless Steel and why is it different to other metals
- Applications of Stainless Steel
- How Stainless Steel is made

HANDLING AND FABRICATION OF STAINLESS STEEL COURSE

(This course is currently not available due to Covid restrictions)

ABOUT THE COURSE

This course introduces employees to stainless steel best practices in the workshop and warehouse when handling, storing, fabricating, and working with stainless steel. The target audience would include persons exposed and working with stainless such as shop floor staff, artisans, forklift drivers, packers, operators, etc.

After attending the course, the learners should be able to:

- Understand what stainless steel is, what makes it "stainless", the different grades, common uses, and the basic properties of stainless steel.
- Understand best practices in the warehouse when storing and handling stainless steel in the warehouse.
- Understand the segregation of stainless steel and the benefits of the colour coding chart in the warehouse.
- Understand broad principles during bending, welding, machining, pressing, and drawing and cutting when working with the different grades of stainless steel in the workshop.
- Understand the importance of caring for stainless steel during fabrication.
- Understand what mechanical damage and contamination are and how to prevent them.
- Apply correct procedures for welding, cleaning, and passivation of the weld zone.
- Understand the purpose of cleaning, pickling and passivation when fabricating and installing stainless steel.
- Adhere to guidelines during site work.

PROFESSIONAL WORKSHOPS

ABOUT THE COURSE

Sassda has developed a range of half-day (5 hours) workshops for professionals. This includes CPD accredited courses such as:

- Stainless Steel in Architecture
- Stainless Steel in Drinkwater Applications
- Stainless steel in Corrosive Applications for Mining and Industry

Sassda can create industry or application focussed information or training sessions in a short time.

COLUMBUS STAINLESS CHAMPIONS SAFETY WEEK

Columbus Stainless recently celebrated Safety Week in commemoration of World Steel Safety Day with the motto *"Our People, Our Priority: Safety First."* Various activities took place throughout the company's Middelburg offices and plant, with a specific focus on the main causes of accidents in the steel industry.

Many of the activities undertaken involved employees and their families to highlight the value of *"Safety as a way of life"*. Primary school children reminded their parents of the importance of coming back home safely. Children between the ages of 6 and 10 years old were hosted and treated to a plant tour to experience the vastness of the factory.

The tour was hosted by the Steel Plant Senior Manager **Dirk Kruger** and Occupational Health, Safety & Environment Senior Manager **Johan du Toit.** The children were excited when they thought they saw *"Lava"* but it was actually a transfer ladle full of molten steel being picked up by a metal crane to be charged into the Argon Oxygen Decarburisation (AOD) vessel.

Another activity targeted secondary school students in the form of a social media safety competition. Interested students, whose parents work for Columbus Stainless, submitted a 90-second video on why safety is important to them. All videos received underwent a rigorous judging process.

The creativity was enormous, and the judges finished with a joint third place. The four students were invited to the prestigious recognition and awards ceremony where the prizes sponsored by Nashua Mpumalanga and Columbus Stainless were handed out in the presence of their parents.

THE WINNERS FOR THE NIGHT WERE AS FOLLOWS:

1ST PRIZE, LAPTOP:
Cherise Hattingh, Grade 10, HoërTegniese Skool Middelburg (HTS)

2ND PRIZE, TABLET:
Juane Fourie,Grade 11, HoërTegniese Skool Middelburg (HTS)

3RD PRIZE, SMART PHONE:
Etienne Louw, Grade 9, Middelburg Hoërskool (MHS).
Reinhardt Visser, Grade 12, Middelburg Hoërskool (MHS).

MACSTEEL BUSINESS TRANSFORMATION FOCUS DELIVERS INDEPENDENT OWNERSHIP

Macsteel has launched the third of its independently owned Macsteel Express franchise partnerships in Nelspruit. Macsteel launched the first of its two Franchise partner concept outlets in February this year in Klerksdorp and Welkom.

Mike Benfield, Macsteel CEO said, "We recognised the need for transformation and understand that transformation today focuses on the need to generate new value—to unlock new opportunities, to drive new growth and to deliver new efficiencies for our clients."

"The economic climate has dictated the necessity for business transformation to ensure one remains competitive. It required us to rethink how our business creates value, not only today but, in the future, and as such has necessitated us to think big. Incremental improvement is not enough to win in today's exponentially disrupted business environment. Macsteel requires sustained growth in the face of constant disruption, and sustained growth requires agile reinvention. It's not enough to win today, we have to be able to continue to evolve in the future and ensure that Macsteel remains competitive and sustainable for another 116 years," concludes Benfield.

The franchising-partnering concept is a shift in Macsteel's business model, driving consolidation and centralisation of functions within the business aimed at ensuring the sustainability of its services to customers in regions around the country. It was this that led Macsteel to consider the option of independent ownership of certain Macsteel Branches.

obituary

Antonino La Monica (Nino)

Nino La Monica was born on the 2nd of February 1947 in Sicily. Due to the economic difficulties in Europe at the end of the second world war, the family moved to northern Italy near the industrial town Turin. Nino left school early due to the economic circumstances at the time and started working at the age of 14.

Through his will and determination to improve his living standard, he learnt his trade as a tool and die maker and qualified in his early twenties. Nino's sense of adventure brought him to South Africa in 1970. Instead of staying for a short time, Nino found a place to call home and remained in South Africa.

On arrival in South Africa, he worked in the automotive industry as a tool and die maker for approximately ten years before he had the opportunity to start Remkor Tools together with a partner on the 1st of June 1981. The partnership lasted eighteen months before Nino became the sole proprietor of Remkor Tools.

Remkor was originally based in Polly Street, in central Johannesburg, and only manufactured tools and dies. In 1986 they moved to Ophirton where they expanded into stamping for the automotive industry, as well as manufacturing larger and more complex tools and dies, including some of the largest tool making equipment in private hands at the time.

In the early 1990s, Remkor evolved to include production stamping for a number of customers which by then included the telecommunication sector.

In the mid-1990s the company became a member of Sassda and increased its business offerings to include fabrication and welded assemblies. In 1997 it moved into the current premises which were designed and built by Nino.

By early 2002, the company expanded further to includes another

two factories and also expanded its offering to the industry to include powder coating. Nino also decided at the time to change the name of the company from Remkor Tools to Remkor Technologies to represent the changing scope and diversity of the company. The company continued to expand and grow under Nino's vision and leadership for many years, who took the company to the pinnacle of sheet metal manufacturing and fabrication in recent years.

Amongst other achievements, Remkor won two Sassda Awards. In 2004 it received the Merit award for the design and manufacture of domestic extractor hoods and in 2006 it won the Product Category for an airport public waiting area seating.

Nino always had an insatiable desire for adventure, which brought him to South Africa 50 years ago. This continued even later in his life and he would use every opportunity to travel somewhere around the world.

The industry tragically lost him in January 2021 due to COVID-19 complications and he is survived by his wife, his two sons, Raffaele and Fabrizio (who now run the business) and three grandchildren.

Malondi Capital Investments

Reg. no.: 2015/358541/07

FOUNDRY * TECHNOLOGIES * MACHINE SHOP

Stainless Steel Only Foundry & Machine Shop

Malondi Capital Investments

Malondi Capital Investments was established in 2015. It consists of a group of companies:
*** 'Stainless Steel Only' Foundry**
*** Metallurgical Laboratory (Technology)**
*** Machine Shop (Technology)**

Foundry

Malondi Capital Investments Foundry is the main 'Stainless Steel only' foundry started in 2015. We focus on the niche market of Stainless Steel only castings of superior quality.

Facilities, Capabilities

Malondi Capital Investments Foundry is situated at 17 Nichols street, Chamdor, Krugersdorp. The foundry covers 2000m^2 under roof.
The foundry has 2 medium frequency furnaces consisting of 150KG &500KG furnaces, a metallurgical laboratory, 5 ton/ hour sand plant with a continuous mixer & heat treatment plant for Stainless steel castings. We have a lifting capacity consisting of a 10 ton crane in the foundry and a 3 ton crane in the heat treatment plant.

We serve a wide range of markets such as:

- Pump and Valve company
- Rail companies
- Mining companies
- Engineering companies and machine shops
- Power generating companies
- Cement companies
- Pulp and papers companies
- Smelters and Heat treatment companies
- Chemical and petrochemical companies.

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