Volume 23 Issue 1
March 2026

# HOT DIP GALVANIZING TODAY 90

The Official Publication of the Hot Dip Galvanizers Association Southern Africa

## CORROSION CONTROL OF STEEL

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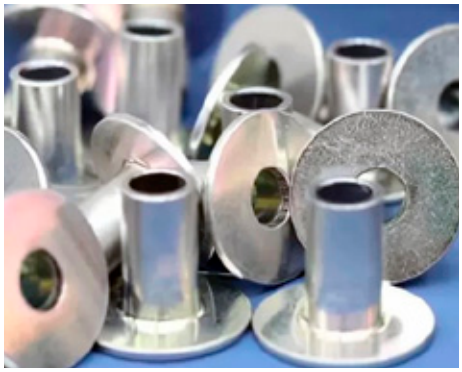

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ISSN 1023/781X

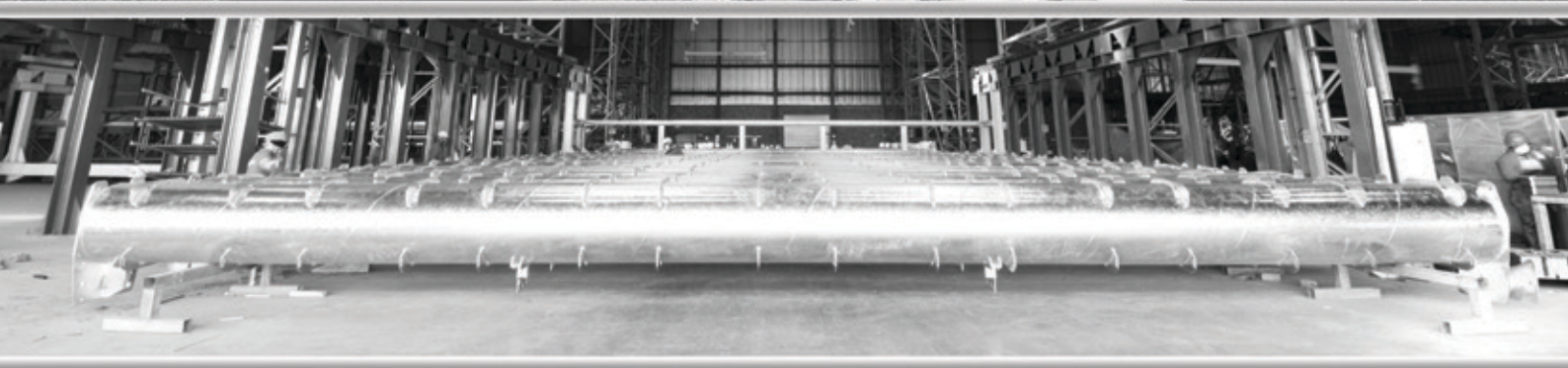
**PUBLISHED BY:**
**Hot Dip Galvanizers Association Southern Africa**
Bedfordview Office Park, Building 1, Ground Floor, 3 Riley Road, Bedfordview
P.O. Box 2212 Edenvale 1610 Tel: 010 746 8927 Email: hdgasa@icon.co.za Website: www.hdgasa.org.za

**Executive Director:** Robin Clarke Cell: 082 902 5119 Email: robin@hdgasa.org.za

**Publication Liaison:** Anthony Botha Cell: 082 326 6080 Email: anthony@hdgasa.org.za

**Design and Layout:** Sandra Addinall Tel: 083 601 7209 Email: cbtdesign@adcot.co.za

**Reproduction and Printing:** Camera Press Tel: 011 334 3815 Email: cpquotes@camerapress.co.za



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# EXECUTIVE DIRECTOR'S Comment

***Investment or cost***

The HDGASA is often approached to engage with architects, engineers and project management on the comparative costs of paint systems and hot dip galvanizing as corrosion control technologies.

Whilst we reinforce that both technologies are appropriate for achieving certain goals, it is apparent that in the main only capital costs are considered rather than life cycle costing. This is a challenge unless there is full appreciation for proper comparative analysis.

Simply the rate of weathering of zinc – the basis of the hot dip galvanized coating – is well documented. We have rates of wear clearly defined for all environment conditions in ISO 9223. This enables us to provide very definitive answers for time to first maintenance and also service life of a hot dip galvanized coating.

Paint systems are complex in that a plethora of options exist regarding composition and thickness of the coating to be applied. The complexity is amplified by quality of surface preparation and potential variability in atmospheric conditions at time of application. Despite this, efforts to "standardize" paint selection criteria have been promulgated in ISO 12944-5. Here different paint types and different coating thicknesses to be applied have been suggested as specifications for attainment of medium, high and very high service lives in certain environments.

In the first instance the required time to first maintenance must be determined. Thereafter the environmental conditions to which the structure will be subjected to must be understood. Only then is it possible to determine the actual paint system required to deliver the durability required. The cost of such a system may then be compared in Rand per ton and/or rand/m² terms to that of hot dip galvanizing. Repeatedly calculations illustrate the competitiveness of hot dip galvanizing.

## SNIPPET: "Coffee staining"

"Coffee Staining" is a phenomenon which is a *field-observed, long-term discoloration mechanism.*

"Coffee staining" is a brown discolouration that develops on galvanized steel after extended field exposure. It resembles the colour and pattern of spilt coffee, hence the name. Although visually concerning, it is typically superficial and does not indicate coating failure.

The condition arises from environmental moisture reacting with the iron fraction in the slowly corroding zinc-iron alloy surface, typically of silicon-killed steels. It is not a defect of the galvanizing process itself, but a service-environment phenomenon.

Although "Coffee Staining" is not a formal term in standards, it is a documented staining mechanism of in service galvanized coatings.

Coffee staining is cosmetic; the zinc coating remains intact and continues to provide sacrificial protection to the substrate steel.


1


2

**Figure 1:** "Coffee stained" HDG member in C4, in service >40 years.

**Figure 2:** Based in Germiston in C3/C4, in service >35 years.

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# EDITORIAL COMMENT:

*"Value is born not from the expense, but from the durability of what we choose to invest in and build for the long term."* – *Anonymous.*

The things we purchase are not always the things we should invest in. True investment requires more than simply paying a price; it must deliver benefits without ongoing costs for as long as possible. Training and durability are two key elements of wise investment. Knowing which options provide benefits over the longest timeframe helps us make informed decisions about cost versus wise spending.

In this issue:

- Investment in galvanizing plant equipment: Enhancing longevity through improved process control is a cornerstone of sustainable plant investment.
- Trained personnel as value investments: Skilled teams add value and control costs in steel fabrication projects – from design through in-field application – ensuring durability of outcomes.
- Facility refurbishment vs. foresight: Large-scale refurbishments are costly and often avoidable with appropriate technological foresight, unlike the initial cost-focused approach taken with our World Cup stadiums.
- Galvanizing vs. plating: Understanding the difference between these technologies is critical for long-term structural performance. Misapplication or confusion can lead to costly consequences.
- Chemistry of hot dip galvanizing: The appearance of galvanized material is explained, clarifying how surface finish relates to durability.
- Marking articles for HDG processing: Proper marking ensures articles are well-galvanized and traceable throughout the process.
- Bolt and Engineering appointment: As a Harris Authorised Distributor, B.E.D. assures customers of the service quality and professionalism for which they are renowned.

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# MODERN GALVANIZING demands modern insight

Continuous galvanizing has never been more demanding. Today's lines must deliver consistently high coating quality across a growing range of products – galvanized, galvanneal, aluminized, galvalume™, and increasingly complex zinc-aluminum-magnesium alloys. At the same time, producers are under pressure to improve efficiency, reduce waste, and respond faster to process variations. In this environment, traditional approaches to zinc bath control are no longer sufficient.

The industry's evolution has created a clear need: accurate, reliable, and immediate insight into bath conditions. Real-time data is no longer a luxury – it is a requirement.

**Real-time bath chemistry comes of age**

More than a decade ago, Tecnar recognized this shift and pioneered real-time zinc bath chemistry monitoring for continuous galvanizing lines. That early vision has matured into the **Galvalibs 2.0**, a production-ready sensor platform designed to give operators direct, actionable insight into bath chemistry, level stability, and dross formation.

Rather than waiting for laboratory results, operators can now see soluble aluminum, iron, magnesium, and silicon concentrations in real time. This immediate feedback allows faster decision-making, tighter control of chemistry, and more stable operating conditions – coil after coil.

**From measurement to control**

What sets the Galvalibs 2.0 apart is not only what it measures, but how those measurements translate into control. By continuously monitoring bath chemistry and pot level with high precision, operators gain the ability to:

- Maintain optimal aluminum levels and limit unnecessary losses
- Identify and address root causes of dross formation
- Stabilize bath conditions to support consistent coating quality
- Reduce dependence on manual bath sampling and laboratory analysis

With chemistry accuracy reaching a relative standard deviation of 0.5% and pot level measurement accuracy of ±0.4 mm, the system delivers the resolution required for modern high-performance galvanizing lines.

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Galvanizing lines today rarely produce a single product. The Galvalibs 2.0 has been designed to operate across a wide range of coatings, including galvanized, galvanneal, zinc-aluminum-magnesium, aluminized, and galvalume™. This versatility makes it a practical long-term solution as product mixes continue to evolve.

Equally important is connectivity. The system is fully compatible with Industry 4.0 environments, allowing sensor data to be seamlessly transferred across plant networks – from the operator pulpit to management offices – for real-time review and analysis.

**Proven in production**

Technology adoption in galvanizing ultimately comes down to one question: does it perform in the plant? Feedback from operating lines suggests the answer is yes.

At Wuppermann, the Galvalibs 2.0 has demonstrated stability and robustness in daily operation, from hardware and software to calibration and spare parts. Users highlight the value of the complete package and the experience behind its development.

Similarly, at Pro-Tec Coating, long-term collaboration with Tecnar has resulted in multiple system installations. Reliable operation, successful commissioning, and consistent customer support have been key factors in expanding use of the technology.

**Support that matches the technology**

Advanced sensors are only as effective as the support behind them. Tecnar has built its reputation on long-term engagement with customers, supported by a global base of more than 700 sensors operating daily across multiple industries. Regular investment in research and development, combined with structured voice-of-customer programs, ensures that products continue to evolve alongside real production needs.

In galvanizing, where downtime is costly and margins are tight, that commitment to service can be just as important as the measurement itself.

**A clear advantage for modern galvanizing**

As galvanizing lines push toward higher efficiency, tighter tolerances, and broader product portfolios, real-time bath insight is becoming a cornerstone of competitive operation. The Galvalibs 2.0 reflects how far the technology has progressed – from a novel measurement tool to an integrated process control solution.

For producers focused on coating quality, resource efficiency, and operational confidence, modern galvanizing increasingly means modern sensing – and real-time knowledge of the zinc bath.

*https://moltenmetalanalyzer.tecnar.com/why-libs/*

# PREVENTING PROJECT DELAY COSTS
## when hot dip galvanizing

Hot dip galvanizing is chosen for its durability, predictability, and long-term value. It is a corrosion-control solution trusted across industries that rely on consistent, long-lasting steel performance, from power transmission, mining, construction, and industrial infrastructure to solar PV plants. But even the most robust corrosion-protection system cannot shield a project from the financial consequences of preventable delays. Time lost early in a project often becomes money lost across the entire value chain, and the root cause is frequently the same: insufficient training across stakeholder groups.

Most delays in hot dip galvanizing specified projects do not originate in the galvanizing plant. They begin upstream, where design, detailing, and fabrication decisions determine whether steel arrives galvanizing-ready or destined for rework. A drawing that omits venting and drainage requirements, a weld contaminated with anti-spatter, or a steel chemistry unsuitable for galvanizing may seem minor. However, once the steel reaches the galvanizer, these oversights can significantly disrupt production, driving up both cost and turnaround time. And these immediate costs, extra labour, wasted materials, and lost hours are only the start.

Every delay sets off a chain reaction. When fabrication stalls, transporters must reschedule collections, often incurring demurrage fees or additional trips. Contractors on site, expecting steel on a specific date, are left with idle teams and equipment that continue to accumulate daily hire charges. Inspectors return for repeat assessments. Project managers spend hours resolving issues

that could have been avoided with proper preparation. Galvanizers must reshuffle kettle schedules, resulting in idle labour, inefficient zinc usage, and missed production windows. These time-based costs rarely appear as a single line item, yet they steadily erode project budgets and strain relationships between stakeholders.

The financial impact grows even further when teams lack a shared understanding of galvanizing standards. A coating fully compliant with SANS 121 (ISO 1461) may be incorrectly rejected, triggering unnecessary meetings, potential refinishing costs, additional inspections, and further delays. Every hour spent debating interpretations is an hour not spent advancing the project. These disputes are not minor technical disagreements; they are direct cost penalties.



Handling and installation add another layer of risk. A properly galvanized component can be damaged by improper rigging, careless loading, or unsuitable on-site storage conditions. When this occurs late in the project timeline, the cost of delay is amplified by installation deadlines and the knock-on effects on other contractors waiting to proceed. Any event that halts work triggers investigations, downtime, and schedule slippage, compounding the economic impact.

What ties all these costs together is a simple truth: most are avoidable. Proper training across the entire project ecosystem – specifiers, project engineers, designers, fabricators, transporters, inspectors, installation teams and the galvanizer themselves – is the most effective tool for preventing the delays that drive these expenses. When stakeholders understand galvanizing requirements, communicate effectively, and make informed decisions, projects flow more smoothly. Steel arrives ready for processing. Coating outcomes are predictable. Disputes diminish. And the hidden costs of delay disappear.

Training transforms project performance because it protects the most valuable resource in any engineering environment: time. Every hour saved through correct detailing, proper preparation, clear communication, and accurate interpretation of standards is an hour that does not accumulate into wasted labour, extended equipment hires, missed milestones, or strained relationships. In an industry where margins are tight and expectations are high; the financial impact of preventable delays cannot be ignored.

Hot dip galvanizing delivers exceptional long-term value when the project ecosystem around it is aligned, informed, and prepared. Training is not an overhead cost; it is a strategic investment that safeguards budgets, schedules, and the integrity of the final product. For engineering projects that rely on HDG, an investment in training is small. The cost of delays is not.

# AFRICA FACES TWO-DECADE CATCH-UP
## as it buckles under the cost of poor engineering

**Figure1:** Dr Janet Cotton, founder and CEO at One Eighty Materials Engineering Solutions.

South Africa is at least 15 to 20 years behind Europe and the US in material engineering, and, in an environment of rapidly expanding infrastructure and increasing industrialisation, the current dearth of formally trained materials engineers and physical metallurgists is seriously impacting growth opportunities on the continent.

"For the past 30 years, South Africa's universities have focused on extractive metallurgy, particularly for mining, rather than physical metallurgy and materials engineering, leaving major civil and infrastructure projects without in-house specialists who understand how different materials behave, fail, and need to be specified, tested and monitored," explains Dr Janet Cotton, founder and CEO at One Eighty Materials Engineering Solutions.

Cotton estimates there are around 3 000 specialist materials engineering firms in the United States alone, employing in the region of 200 000 to 300 000 professional materials engineers. By contrast, Africa's 1.5 billion people are served by only a handful of commercial materials engineering laboratories of meaningful scale.

According to Cotton, Africa's scarcity of specialist materials engineers and accredited labs means that everyday business decisions are being taken with a dangerously incomplete view of how assets will behave over time.

"Without in-house expertise, Engineering, Procurement, and Construction (EPC) professionals will cut and paste old specifications, opting for indiscriminate material selection and defaulting to whatever worked on the last 10 projects. For operators, this translates into assets that were modelled for 25-year lifespans quietly failing after five or ten years, with no reliable life-prediction or wear modelling to warn them. Where newer, better-performing materials exist, they are frequently not considered, and where global standards call for higher-grade materials, local work-arounds are common," she warns.

### The cost of the knowledge deficit

Cotton points to Eskom's Medupi and Kusile power stations as typical examples of gross failures due to a lack of understanding of appropriate metallurgy, which she says left the country with two power stations that will never run at full capacity.

But it's not just construction projects that are at risk. Cotton explains that similar issues are playing out across multiple industries across the continent.

In food, renewables, and broader manufacturing, she says under-specified materials and superficial quality assurance and quality control have led to total product recalls, environmental spills and delayed commissioning – sometimes triggering late-delivery payouts worth hundreds of millions of rands.

For financiers, the shortage of credible materials engineering and root cause expertise translates into higher technical risk on every deal, undermining projected returns and triggering costly remediation or replacement.

For insurers, even small, under-tested components can drive outsized claims and Cotton shares an example of a renewables plant where failed elbow joints led to a R500-million late-delivery payout.

What's more, she warns that for legal firms, weak or technically incorrect failure reports drive long, complex disputes, forcing clients to bring in costly overseas experts, which raises litigation costs and makes it harder to resolve engineering-related claims.

"The net result is that our African industries are carrying higher technical risk, higher insurance and project costs, and more downtime and potential reputational damage. More than this, we are now exporting high-value engineering and root cause analysis work offshore instead of building vital local capital expertise," Cotton says.

**Industry experts gather to address the challenge**

Against this backdrop, the second Root Cause Analysis (RCA) Africa conference will take place in Cape Town from the 9th to the 11th of March this year.

The event aims to shift the default from exporting problems and tests overseas to building local capital of expertise in Africa's own materials engineering community.



"This Pan-African conference will put these materials engineering failures under the spotlight, with the goal of changing how risk is perceived and managed before projects break ground," says Antonio Massella, disaster and risk management consultant at One Eighty Materials Engineering Solutions and Conference Director. "On one level, it is a structured situation report on just how far behind South Africa and the continent are in materials engineering. More importantly, it is also a working forum for the ecosystem that ultimately bears the cost of these failures to brainstorm and find solutions."

The conference at Vredenheim Wine Estate will bring together material engineers, risk engineers and operations and maintenance leaders, as well as underwriters, loss adjusters, lawyers, financiers, regulators and laboratory specialists from across the continent. The agenda has been designed to cater for all parts of the ecosystem and Cape Town Mayoral Committee Member for Economic Growth, Alderman James Vos, has agreed to open the conference, proving the growing recognition of the link between materials performance, infrastructure reliability, and economic growth.

Other speakers such as Lucien Matthews will add to the discussion along with technical specialists from law firms, insurers, consulting firms and African institutions such as the CSIR. Roundtables and fireside chats will encourage frank discussion and address contentious subjects including the future of the *force majeure*.

"This conference is a starting point for a change in the culture from reactive, post-facto blame and liability to one of preparedness and prevention, as well as risk elimination and risk mitigation. Where proactive root cause analysis, proper testing and credible local expertise are built into projects from the outset rather than bought in after they fail," Massella says. "To me, it's common sense, it's cheaper, it's about due diligence, and it's the right thing to do, especially when human safety and lives are at stake."

# THE ZINC DIVIDE:
## Choosing between hot dip galvanzing and electroplating

Steel is the unsung hero of modern infrastructure – strong, versatile, and essential. But left unprotected, it's vulnerable to corrosion, especially in harsh environments. To combat this, engineers turn to zinc coatings, which act as both a physical barrier and a sacrificial shield against rust. Two primary methods dominate the field: zinc electroplating, often called electro-galvanizing, and hot dip galvanizing (HDG). Though both rely on zinc's protective qualities, their processes and performance diverge in critical ways.

**Forged in fire: The power of hot dip galvanizing**

Imagine plunging perfectly cleaned steel into a bath of molten zinc heated to around 450°C. That's the essence of hot dip galvanizing – a process that doesn't just coat the steel, but chemically bonds with it. As the steel reacts with the molten zinc, it forms a series of alloy layers – Gamma, Delta, Zeta, and Eta – that fuse to the surface. These layers create a rugged, durable coating that can range from 55 to over 100 microns thick, depending on the steel's chemistry and immersion time.

The result? A finish that may vary from bright silver to dull grey, but always delivers robust protection. This metallurgical bond is far stronger than the mechanical adhesion of other methods, making HDG the go-to choice for transmission towers, bridges, stadiums, and other structures that demand decades of corrosion resistance.

**Figure1 - 2:** Hot dip galvanizing.

**Figures 3 - 4:** Electroplating.


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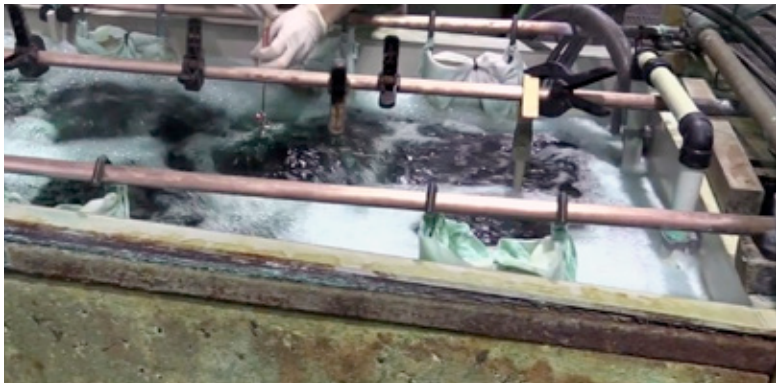
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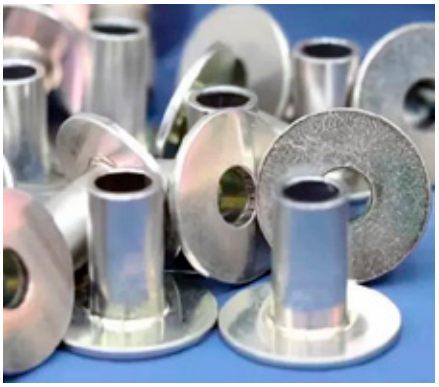
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**Electroplating: Precision with a polished look**

In contrast, zinc electroplating is a cooler, more delicate process. Steel components are immersed in a chemical solution and coated with zinc using an electric current. The result is a smooth, bright finish – typically just 6 to 10 microns thick – held in place by mechanical bonding. Because it's performed at room temperature, electroplating is ideal for small precision parts and decorative applications like fasteners, automotive trim, and consumer goods.

However, the thinness of the coating limits its durability. Electroplated steel may look sleek, but in aggressive environments, its corrosion resistance fades quickly.

**Thickness tells the tale**

When it comes to corrosion control, thickness matters. A zinc coating's ability to protect steel is directly tied to how much of it is present. Electroplated components, with their sub-10 micron coatings, offer limited protection. In contrast, HDG coatings – often five to ten times thicker – can extend a component's service life by decades.

As one technical source puts it:

*"It therefore follows that a hot dip galvanized coating, by virtue of its thickness, will provide greater corrosion control when compared to that of a zinc electro-plated component."*

**Making the right choice**

So how should engineers and fabricators decide? It depends on the application:

- Electroplating is best suited for indoor, decorative, or precision parts where appearance and tight tolerances matter.
- Hot dip galvanizing is essential for structural steel exposed to the elements, moisture, or industrial conditions.

**Final verdict**

While electroplating may win on aesthetics, hot dip galvanizing is the undisputed champion of long-term corrosion protection. For those designing infrastructure that must endure the test of time, HDG offers peace of mind – and a metallurgical fortress against rust.

# HOW STEEL CHEMISTRY IMPACTS galvanized coating appearance

When steel meets molten zinc in the hot dip galvanizing process, the result is more than just corrosion protection – it's a complex interplay of chemistry, temperature, and time that determines the final appearance and performance of the coating. While the protective power of zinc is well known, the surface finish of galvanized steel often sparks curiosity, especially when variations appear across components. The answer lies in the steel's chemical makeup – specifically, its silicon and phosphorous content.

**The chemistry behind the appearance**

Carbon steels used in galvanizing are broadly categorised as either aluminium killed (Si <0.03%) or silicon killed (Si >0.03%). These terms refer to how the steel is deoxidised during production, but they also hint at how the steel will behave when dipped into molten zinc at temperatures between 440°C and 450°C.

Aluminum killed steels typically yield a bright, silvery finish with coating thicknesses around 50 - 70µm. Over time, this surface naturally weathers into a uniform dull grey patina of zinc carbonate ($ZnCO_3$), which acts as a the slowly corroding barrier against the environment.

Silicon killed steels, especially those with silicon levels between 0.15% and 0.25%, react more aggressively with zinc, producing thicker coatings – often between 120µm and 200µm. These coatings may appear dull grey or mottled, but their performance remains robust.

**When phosphorous enters the mix**

Add phosphorus to the equation, and things get more unpredictable. Steels with low silicon (<0.04%) and moderate phosphorous (0.025 - 0.035%) can develop localised surface defects – "orange peel" or "tree bark" textures – especially on curved or tubular sections. Higher phosphorus levels (>0.035%) may make the coating more prone to chipping under impact, as brittle zinc-iron alloy layers extend to the surface.

Despite these aesthetic quirks, these coatings can result in different surface appearances and finishes, but do not detract from the corrosion control characteristics of hot dip galvanizing.

**Cooling rates and visual contrast**

Even the cooling rate after galvanizing can influence appearance. Heavier steel sections retain heat longer, allowing the delta layer – a zinc-iron alloy – to continue growing and reach the surface. This results in a dull matt grey finish, while cooler areas may retain a bright silver sheen from pure zinc solidification. Both finishes eventually weather to the same protective zinc carbonate layer.

**Standards and acceptance**

According to SANS 121: 2024 / ISO 1461:2022, aesthetics are secondary to protection. Surface variations – whether roughness, cellular patterns, or even wet storage stains – are not grounds for rejection as long as the coating thickness meets specifications. The standard encourages clear communication between galvanizer and customer when appearance matters, especially for decorative applications.

**Final thoughts**

Hot dip galvanizing is as much an art as it is a science. While the process reliably delivers corrosion protection, the final look depends on the steel's chemistry, handling, and cooling. Understanding these variables helps engineers and fabricators set realistic expectations and appreciate the metallurgical beauty beneath the surface.

# GALVANIC CORROSION
## at Cape Town Stadium

When Cape Town Stadium opened its doors for the 2010 FIFA World Cup, it was hailed as one of the country's most striking architectural achievements, a sweeping, modern landmark set against the Atlantic coastline. But behind the elegance of its iconic roof, a slow and silent threat was already taking shape.

Just four years after completion, engineers inspecting the structure uncovered a problem no one expected so soon: galvanic corrosion eating away at critical aluminium beam connections. The discovery revealed an uncomfortable truth: the issue wasn't rooted in bold design, but in something far more mundane and preventable - lapses in quality control.

### The first red flags

Routine inspections initially revealed subtle but worrying signs around bolted connections. When sections of the aluminium beams were removed for closer examination, the picture became clearer and more troubling.

Engineers found:

- A white, powdery corrosion residue
- Visible material loss around bolt holes
- Corrosion hidden beneath stainless-steel washers

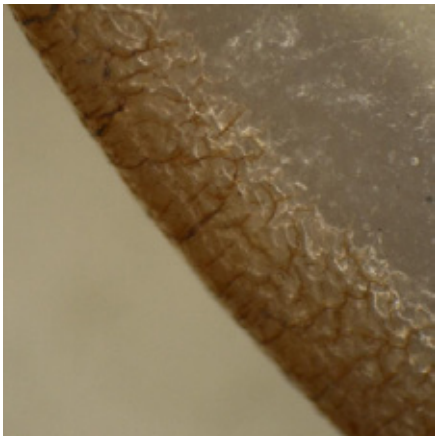
These symptoms pointed to a classic electrochemical mismatch. Stainless steel fasteners had been installed directly against aluminium beams a well-known galvanic mis-pairing, especially risky in Cape Town's marine environment.

The problem wasn't theoretical. It was already advancing.

### Why It mattered

On a project of this scale, even minor defects don't stay minor for long. Each small oversight multiplies across

Image by pascal OHLMANN from Pixabay.



thousands of components, quietly eroding performance and driving up long-term maintenance costs.

While the corrosion did not pose an immediate threat of collapse, its progression would inevitably compromise the roof structure long before its intended 50-year lifespan. The stadium's reputation and the city's investment were at stake.

**What went wrong**

The root cause was not a lack of engineering knowledge. It was a breakdown in basic quality control underpinned by lack of insight into the galvanic corrosion mechanism and its impact at coastal level in particular:

- Polymer isolation washers were damaged or incorrectly fitted
- Tight crevices around connections trapped moisture
- Out-of-spec components slipped through without detection
- Installation checks were inconsistent or incomplete

In short, the protective measures designed to prevent galvanic corrosion were either missing, inadequate, or improperly installed.

**What should have happened**

The tragedy of the failure is how easily it could have been avoided. The required safeguards were neither complex nor costly:

- Routine, documented QC inspections
- Proper isolation between dissimilar metals
- Compatible materials in respect of corrosion prevention
- Properly implemented installation procedures

Had these fundamentals been consistently enforced, the corrosion would never have taken hold.

**Lessons for the industry**

Engineering failures rarely stem from a lack of scientific understanding. More often, they arise when standards are not followed, when oversight weakens, or when small shortcuts accumulate into systemic vulnerabilities.

Cape Town Stadium serves as a reminder that:

- Quality control is not a formality
- Minor deviations can become major liabilities
- Large projects amplify every oversight
- Preventive discipline is always cheaper than corrective repair

In the end, the corrosion at Cape Town Stadium wasn't a failure of design it was a failure of diligence.

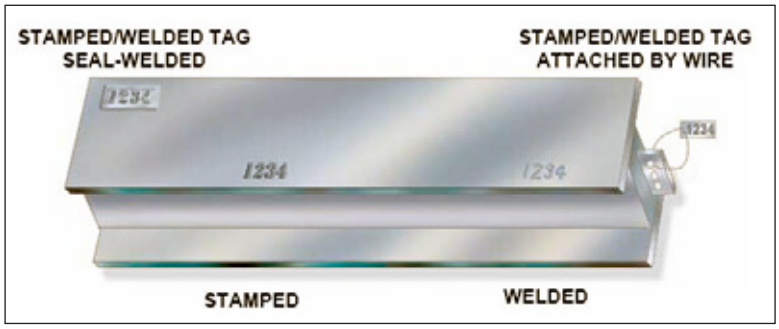
*Source: Sub edited from MATERIALIA JANUARY 2026 WWW.ONE-EIGHTY-DEGREES.COM*

# MARKING FABRICATED ARTICLES
## for identification and traceability


Identification markings on fabricated items should be carefully prepared before galvanizing so they will be legible after galvanizing, but not disrupt the zinc coating's integrity.

Cleaning solutions used in the galvanizing process will not remove oil-based paints, crayon markers or oil-based markers, so these products should not be used for applying addresses, shipping instructions, or job numbers. If these products are used, ungalvanized area may result.

Detachable metal tags or water-soluble markers should be specified for temporary identification. Alternatively, bar code tags are manufactured to survive the hot dip galvanizing process and easily maintain identification.




Where permanent identification is needed, there are three suitable alternatives for marking steel fabrications to be hot dip galvanized. Each enables items to be rapidly identified after galvanizing and at the job site.

Stamp the surface of the item using die-cut deep stencils or a series of centre punch-marks. These marks should be placed in a standard position on each of the members, preferably toward the centre. They should be a minimum of 20mm high and 1mm deep to ensure readability after galvanizing. This method should not be used to mark fracture-critical members.

A series of weld beads may also be used to mark letters or numbers directly onto the fabrication. All weld slag must be removed to achieve a quality galvanized coating.

Deep stencilling a steel tag (minimum 1.5mm thick sheet) and firmly affixing it to the fabrication with a minimum #18-gauge steel (≥1.5mm) wire is another option for identification. The tag should be wired loosely to the work so that the area beneath the wire can be galvanized and the wire will not freeze to the work when the molten zinc solidifies.

# AVAILABLE FROM THE ASSOCIATION

## METAL-PRO GALV-FRIENDLY MARKERS

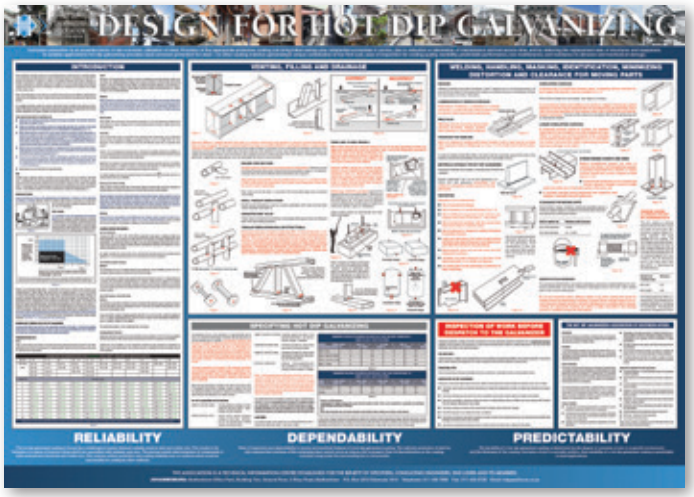
Designed for use in the hot dip galvanizing process, this **marking pen** stays on during fabrication but is removed completely in the galvanizing process.

### PRO FEATURES

- Permanent marks during fabrication
- Ergonomic non-slip rubber PRO GRIP®
- Marks on wet and oily surfaces
- Durable clip cap
- Fast drying
- Weather resistant marks
- Crisp lines or bold lines
- Suitable for all metal surfaces


## DESIGN FOR HOT DIP GALVANIZING WALL CHART

The **wallchart** is an invaluable reference chart for fabricators and specifiers. Key information is readily available to allow for best engineering practice for galvanizing.





## TECHNICAL GUIDES

The HDGASA **Steel Protection Guide** and **Facts about Hot Dip Galvanizing** are available in high-gloss printed material for reference and guidance.

HOT DIP GALVANIZERS ASSOCIATION SOUTHERN AFRICA

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# HDGASA GOLF DAY

## 29/05/2026

THE LAKE CLUB BENONI

CNR EDWARD & DIVOT

STREET, BENONI, 1501

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# B.E.D. APPOINTED AS
## Harris Products Group authorised disbributor

### BIGGER AND BETTER WITH B.E.D.!

Bolt and Engineering Distributors Group (B.E.D.) has been appointed as an authorised distributor for the Harris Products Group, representing its full metalworking equipment and consumables portfolio in South Africa.

Harris's appointment of B.E.D. establishes a single, nationally supported distribution channel for the company's cutting, gas control and associated products portfolio - supported by extensive stockholding, deep technical expertise and value-adding pre-and after-sales support.

The Harris Products Group is globally recognised for its industry-leading metalworking equipment and consumables for brazing, soldering, welding, cutting and gas distribution; as well as its engineering-led approach, with products designed for demanding industrial environments where safety, reliability and longevity are critical.

According to Anthony McGuinness, Sales Manager for the Harris Products Group in Sub-Saharan Africa, there is a strong operational and cultural fit with B.E.D.: "South Africa is a market where robust technical understanding, safety compliance and product support are essential. B.E.D. brings an extensive national footprint, experienced technical and sales teams – and an established track record in supporting high-quality, high-performance industrial brands. This creates a solid platform for long-term customer support."

Mike Giltrow, CEO of B.E.D. says that this milestone appointment marks a significant shift in how the Harris brand will be supported locally.

"We have worked with and respected the Harris brand for many of our 42 years in the industry. However, this appointment takes our engagement to a whole new level – with a direct relationship and full accountability for how Harris products are supplied, supported and positioned within key target sectors in South Africa.

Echoing our tagline, *'the perfect fit'*, we believe that B.E.D. is the perfect fit for Harris locally," Giltrow points out.

"Harris products are engineered for safety, reliability and an impressively long service life. B.E.D.'s focus is on ensuring customers not only receive the correct product – but also the technical support and application knowledge to realise its inherent, long-term value," Giltrow adds.

**Engineering quality, safety and compliance**

The Harris Products Group's portfolio includes gas control equipment, cutting solutions and associated systems engineered to meet international safety and performance standards. Many products are designed for use in high-risk, regulated environments – with an emphasis on durability, traceability and consistent performance over extended service life.

Marco Gianelli, Director of International Business - Equipment for the Harris Products Group, explains: "Our products are built to operate safely and reliably in extreme conditions - from heavy industrial fabrication to mining and energy-related applications. Full manufacturing traceability and compliance with international standards form part of our value proposition. Having a local partner that understands these technical requirements is essential."

Through B.E.D., customers will have access not only to Harris products, but also to B.E.D.'s excellent technical knowledge and


**Figure 1:** (Left to Right) Anthony McGuiness, Sales Manager for the Harris Products Group in Sub-Saharan Africa, Marco Gianelli, Director of International Business – Equipment for the Harris Products Group and Shaun Geyer, B.E.D.'s Harris Products brand ambassador and technical specialist.

guidance on correct product selection, application suitability and safe use – supported by trained specialists from the company's welding and cutting division.

**Local availability and technical support**

A key focus of B.E.D.'s appointment by Harris is to ensure consistent product availability and responsive local support. B.E.D.'s countrywide branch network and logistics capability via these branches - and from a national distribution centre – enables customers to access Harris products with reduced dependency on extended supply chains, while benefiting from its local technical assistance.

Shaun Geyer, B.E.D.'s Harris Products brand ambassador and technical specialist says that this partnership strengthens B.E.D.'s technical offering to its customers: "Harris products are engineered for safety, efficiency and a long service life. We are very excited to play our role in supporting our customers with the correct technical advice, application knowledge, pre- and after-sales support, ensuring that the equipment performs as intended throughout its lifecycle."

**Supporting diversification across industries**

While the Harris Products Group has a strong legacy in the mining sector, the appointment of B.E.D. as an authorised distributor also supports its expansion into additional target sectors - including metal fabrication, oil and gas, petrochemical, agriculture, HVAC and light manufacturing. These sectors increasingly require compliant, high-quality gas control and cutting equipment, supported by knowledgeable local partners.

McGuinness adds: "The appointment of B.E.D. is not about rapid expansion, but rather strategically building a sustainable presence across multiple key target industry sectors. As such, B.E.D. is well positioned to support this measured growth, based on its industry track record, technical competence and established customer relationships."

"For B.E.D., this milestone appointment reinforces our strategy of selectively partnering with premier suppliers and manufacturers - whose products are defined by quality, safety and long-term value, to the benefit of our valued customers," Giltrow concludes.

**About Bolt and Engineering Distributors Group (B.E.D.)**

The Group has a solid track record and pool of experience built up over more than 4 decades, supplying its product range to a wide variety of industry sectors, including agriculture, mining, materials handling, working at height and welding.

Bolt Engineering and Distributors (B.E.D.) is synonymous with safety and quality and is dedicated in its support of a 'proudly local' ethos of developing enterprises and staff, and supporting local suppliers and manufacturers.

The company furthermore enjoys long-standing relationships with customers and an impressive portfolio of premium international and local suppliers, based on its values of trust, integrity and taking 100 % responsibility and accountability.

As such, B.E.D. has provided solutions for many key projects and customers throughout many different industries, and provides reliability of stock, sourcing and delivery to its loyal customer base through innovative in-house logistics and management.

*"Knowledge is the only instrument of production that is not subject to diminishing returns"* John Maurice Clark

COURSES OFFERED

## Level I: Introduction to Hot Dip Galvanizing

The HDGASA one day INTRODUCTION TO HOT DIP GALVANIZING course is designed to provide an initial understanding of the concepts relating to hot dip galvanized coatings applied for corrosion control of steel components. The course comprises six modules. In order for the course to be viable we require six or more candidates to attend. Arrangements can also be made for this course to be held at a venue of your choosing for more than six candidates. In addition to the course, a special visit to a hot dip galvanizing plant may be arranged on a separate date, should six or more candidates be interested and able to attend.

## Level II: Certified Galvanizing Inspectors

The HDGASA advanced Level II course provides the necessary skills to assess the quality and conformance of Hot Dip Galvanized coatings and Duplex Systems to the applicable specification. Delegates are introduced to other metallic type coating specifications and their application for corrosion control design.

The course provides an in-depth interpretation of the specifications and accepted best practice procedures for determining coating thickness, visual inspection of surface finishes as well as the evaluation of these coatings for corrosion control of steel components. The course includes a visit to a hot dip galvanizing plant where delegates will have an opportunity to assess finished product against the relevant quality standards on a real time first hand basis.

Three Continuous Professional Development (CPD) points are awarded to delegates attending the entire course. Bookings are limited to a maximum of 10 people, with applications treated on a first-come-first-serve basis. In order for the course to be viable we require 6 or more candidates to attend. Arrangements can also be made for the course to be held at a venue of your choice for more than 6 candidates.

**ENROL IN A COURSE TODAY!**
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HOT DIP GALVANIZERS ASSOCIATION SOUTHERN AFRICA

# HDGASA DRIVES EXCELLENCE through specialised corrosion control training

As South Africa's industrial landscape evolves, the demand for high-quality, durable infrastructure has never been more critical. At the forefront of this mission is the Hot Dip Galvanizers Association of Southern Africa (HDGASA), which successfully concluded its first-quarter 2026 training cycle, featuring the Level 2 course in Bedfordview and the debut of the specialised Fabricator Workshop in Cape Town.

These initiatives underscore a vital reality: the long-term integrity of steel structures relies as much on the expertise of the people processing them as it does on the chemistry of the zinc bath. In a climate where corrosion costs the global economy billions annually, ongoing training in hot dip galvanizing is no longer an optional extra – it is a technical necessity.

The HDGASA remains the sole provider of industry-aligned training of this calibre in South Africa. By bridging the gap between theoretical metallurgy and practical workshop application, the Association ensures that local fabricators and inspectors possess the niche skills required to protect the nation's steel assets.

"Our goal is to provide education that isn't available anywhere else in the region," says the HDGASA. "The launch of our Fabricator Workshop in Cape Town specifically addresses the critical interface between design, fabrication, and the galvanizing process. When fabricators understand the nuances of venting, drainage, and material selection, the result is a superior finish and unparalleled corrosion resistance."

The Level 2 course in Bedfordview continues to serve as the gold standard for those tasked with the inspection and quality assurance of galvanized products. By empowering professionals to identify and rectify potential issues before steel arrives at a site, the HDGASA is effectively reducing waste and extending the life cycles of essential infrastructure – from mining equipment to renewable energy frameworks.

In an era of rapid technological advancement and tightening safety regulations, the HDGASA's commitment to development ensures that South African steel remains competitive on a global stage. As the industry looks to the remainder of 2026, the message is clear: investing in specialised training is the most effective way to combat the relentless force of corrosion.

For more information on upcoming courses and workshops, contact the association at hdgasa@icon.co.za or call us at +27 10 746 8927, attention: Chantell Aucamp.