



Company Profile



Message from

Johannes Coetzee, MD of Martec



Our strength lies in the focused dedication we have towards condition monitoring in support of predictive maintenance. We are proud to have earned the trust of many blue-chip clients in the mining, manufacturing, petrochemical and public sectors. We have developed and maintained several long-term partnerships over many years.

Martec has established supplier relations with a phenomenal list of OEMs representing the best condition monitoring hardware and systems in the world. This enables us to utilise our distinctive knowledge of integrating various best-in-class sensors, systems, software platforms, training, and services into a customised solution that delights our clients.

We are leading from the front and embracing the rapid technological advancements in the field of predictive maintenance.



Who is Martec?



Martec is a leading engineering company specialising in turnkey Condition Monitoring (CM) solutions that enhance plant integrity and reliability for asset-intensive industries and high-energy users or producers. With a comprehensive approach to equipment integrity, we deliver expert consulting, field services, training, product sales, and advanced real-time monitoring (IoT solutions).

From our roots as a trusted distributor of world-class CM technologies, we have evolved into a full-service provider, helping clients navigate the challenges of ageing assets, downtime risks, and reliability optimisation. Our expertise extends beyond diagnostics - we integrate asset and maintenance management best practices, ensuring sustainable improvements and minimised downtime.

At Martec, we embrace the future of Condition Monitoring by integrating the latest Industry 4.0 innovations, connected intelligence, and machine learning into our solutions. Our passion for cutting-edge technology drives us to unlock the full potential of real-time and near-real-time monitoring, transforming data into actionable insights that enhance plant reliability, efficiency and integrity.

We go beyond traditional monitoring - leveraging advanced analytics and predictive solutions to anticipate failures before they happen, minimising downtime and optimising asset performance. With Martec as your partner, you gain access to a new era of predictive maintenance powered by the latest in intelligent condition monitoring.



Est 2006

Years of market-leading experience

NOSA[®]



5-star safety rating



B-BBEE

Level 2
Contributor

Our Value Proposition

Our offering to clients focuses on **Condition Monitoring in support of Predictive Maintenance** and centers around quality products (hardware) and value-added services (expertise and software).

Martec is a supplier of world-class condition monitoring equipment and sensor technology, sourced from all around the world (mostly USA and Europe) and used either as standalone units or integrated into an IoT platform. Our end-to-end motoring solutions provide real-time data which we analyse and turn into actionable information. We employ several industry experts that becomes a trusted extension of our clients' resources, helping to drive their reliability improvement programmes. In addition, our specialist field service teams ensure all critical electrical plant and major mechanical assets are operating optimally with the minimum downtime.

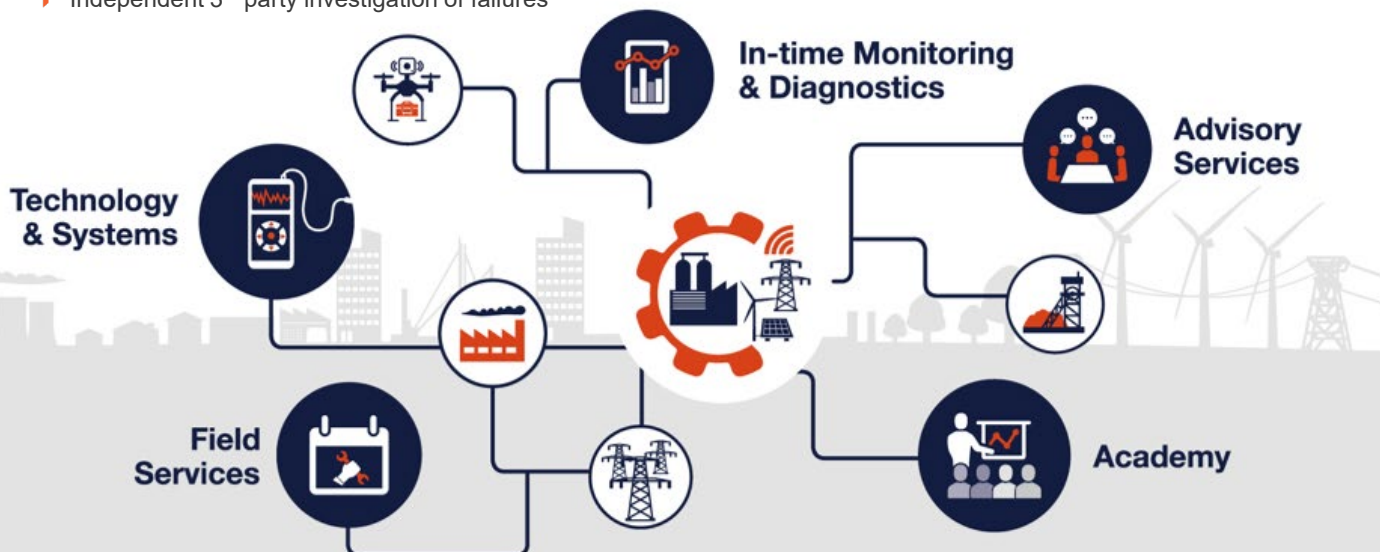
This combined offering ensures our clients have confidence in the reliability of their critical plant.

In brief Martec offers the following:

- Focussed Condition Monitoring and Predictive Maintenance expertise, hardware, service and training
- End to end condition monitoring solutions that include:
 - Designing customised condition monitoring systems
 - Providing onsite service for periodic assessments
 - Supplying the hardware for real-time monitoring systems or handheld devices
 - Installing and commissioning condition monitoring systems
 - Connecting the data to onsite Scada and/or cloud solutions
 - Monitoring and reporting on alarm levels
 - Data analysis, diagnostics and reporting
 - Training and site skills development
 - Actionable recommendations by asset specialists
 - Integration to the major EAMS/ CMMS systems
- Industry experts who will assist with your specific requirements
- Quality assurance of MV and HV electrical installations and hardware supplies
- Independent 3rd party investigation of failures

Expert condition monitoring provides:

- Enhanced asset reliability
- Clear asset health insights
- Cost-effective maintenance
- Prolonged asset lifespan
- Delayed capital expenditure
- Improved capex forecast accuracy
- Regulatory compliance and assurance
- Data-driven decision-making
- Improved asset performance
- Contribution towards sustainability



What is our Differentiation?

Elements that set us apart from our peers

➤ **“One Stop Shop”** for all Condition Monitoring related needs

No need to contact multiple service providers, each focusing on a niche portion of condition monitoring. We cover all your needs.

➤ **Electrical CM Expertise**

We are the market leaders in Africa for monitoring critical electrical installations.

➤ **Asset Type Solutions** – integrated service solution running on IoT backbone

Our portfolio of trialled and tested CM solutions for key critical assets, paired with in-house experts who have decades of experience on these assets, gives you the edge on any other solution out there.

➤ **Expert Advisory** team comprising of industry leaders

Martec is proud to have a team comprising leading experts in the field, with decades of experience, ready to assist you.

➤ **Emergency Return to Service** – breakdown response on critical electrical equipment

Going that extra mile, we know how hard it is to find good quality technical support when you have lost critical HV and MV electrical infrastructure. In the time of need we are there to assist.

“We don’t just monitor assets — we empower businesses with data-driven insights and strategic solutions to maintain reliability, boost efficiency, and safeguard operations.”



Our Offering

Services and Products



Technology and Systems

Official distributors of a large technology catalogue from across the world:

- Ultrasound
- Vibration Analysis
- Temperature and IR
- Radio Frequency Sniffers
- Dissolved Gas Analysis - DGA (Transformer Oil)
- Partial Discharge Testing (MV and HV assets)
- Corona cameras
- Lubrication Control
- Distributed Temperature Sensing (DTS)
- Shaft voltage and current monitoring
- Circuit breaker performance monitoring



In-time Monitoring and Diagnostics

Also known as IOT or Real-time monitoring:

- Custom IOT CM Monitoring Solutions
- Asset Type-based solutions & services (Switchgear, Transformers, MV Motors, Conveyors, etc.)
- Design, Supply hardware, Installation, Commissioning, Edge to Local and/or Cloud Servers, Data Analysis, Control Room Displays, Reporting, Diagnostics and Actionable Recommendations



Advisory Services

Advisory Services

Condition Monitoring Consulting, your trusted advisor based on decades of experience:

- CMIP – Condition Monitoring Improvement Planning
- Defect Elimination/ Failure Investigations
- 3rd Party Expert Witness
- Quality Assurance (hardware and installations)
- Witnessing FAT
- Design Reviews



Field Service

Skilled teams travel to the client's site and deliver service with advanced equipment :

- Condition Monitoring Assessments, taking data, analysis and diagnostics
- No need for client to purchase any equipment or train own resources
- Electrical: Cable & Termination Testing, Partial Discharge (VLF and Tan Delta testing), Dissolved Gas Analysis, Corona, Motor Current, etc.
- Mechanical: Vibration, IR, Ultrasound, Leak detection, Laser Alignment, Balancing, Oil sampling



Academy

Condition Monitoring focused training, delivered as public training or client-specific and on site:

- Essentials of CM
- Ultrasound (CAT1 & ASNT)
- Infra-Red
- Vibration
- Oil Sampling (Transformer)
- Underground Storage/ Tank Testing (Vacusonic)
- Transformer Condition Management
- Electrical Discharge
- Leak Detection

Our Offering

Services and Products



Technology and Systems

Martec helps our clients take control with the right blend of condition monitoring (CM) technologies tailored to their assets, needs and budget. We guide clients in selecting the best CM solutions, whether purchasing own test equipment, renting hardware for rapid coverage, or leveraging our expert service and assessments.

With a strategic approach, we ensure clients deploy the right technologies to maximise asset performance, reduce downtime, and improve operational efficiency.

Martec has distribution agreements with more than twenty leading international suppliers, ensuring that we cater for a large list of CM applications



Field Service

Condition monitoring technologies enable the identification and prediction of potential failure patterns, but leveraging their full value often requires specialised skills. Some advanced technologies can be very costly, making infrequent use financially unviable.

Martec's field services teams provide clients with access to these technologies through skilled resources at a fraction of the cost.

We use advanced technology and industry expertise to assess critical assets, assigning risk levels that guide clients in determining appropriate maintenance actions and timelines.



Advisory Services

Martec's advisory service helps organisations assess, optimise, and implement effective condition monitoring programmes to enhance asset reliability and longevity. Our specialist consultants provide an objective assessment, identifying gaps in tools, processes, and execution.

We integrate engineering fundamentals, IIoT technologies, and workflow processes to develop a fit-for-purpose reliability strategy, ensuring measurable improvements through key performance indicators (KPIs). By partnering with Martec, clients gain a clear roadmap to reduce risk, enhance plant integrity, and achieve sustainable operational efficiency.



Training

We develop the client's skills to perform evaluations on critical equipment with our expert-led condition monitoring training. Our training blends traditional methods with advanced technologies, enhancing workforce competence and aligning operational skills with maintenance requirements.

Developed by experienced consultants, engineers, and learning specialists, our courses follow IEC technical specifications and use structured learning techniques. We also tailor training to include client-specific case studies and real-world scenarios, ensuring immediate applicability.



Realtime Monitoring

Martec's real-time monitoring solution empowers reliability and maintenance engineers with visualised, real-time asset health data and risk insights. Using advanced algorithms for predictive analytics, it enhances decision-making, optimising equipment reliability and plant integrity.

Our service enables both local and remote monitoring, providing expert analysis and actionable insights to maximise uptime and asset longevity. We offer proven tailored solutions for various asset types such as transformers, MV switchgear, motors, crushers, ball mills, etc. By integrating smart IIoT-driven condition monitoring, Martec helps industrial plants transition to a more proactive, data-driven maintenance approach.

Our Key Suppliers

We are proud of bringing only the best in terms of technology and hardware to our clients. Most of the hardware are imported from the USA and Europe, but we constantly monitor this space in search of the latest technology.

Here are some of our most revered suppliers with whom we have long-standing relationships, most of these being exclusive distribution agreements.



Our Market Focus

Martec's focus is on **asset-intensive industries** and clients involved in large-scale electricity generation or with high electricity consumption. Geographically, we operate in Sub-Saharan **Africa and the Arabian Gulf**.

Martec serve the following industries:

➤ Mining and Minerals

- We provide a very broad and well-proven offering that ranges from monitoring and servicing key electrical infrastructure, large plants such as smelters and converters, all the way to asset-specific solutions for ball mills, conveyors, motors, etc.
- We also supply testing equipment and training for technical skills enablement

➤ Manufacturing

- A wide range of clients with electrical and mechanical condition monitoring solutions, services and technical enablement

➤ Petrochemical

- Predominantly, the upstream operations, such as refineries and exploration
- At the retail level, we supply equipment for vacuonic storage tank testing (leaks) and training.

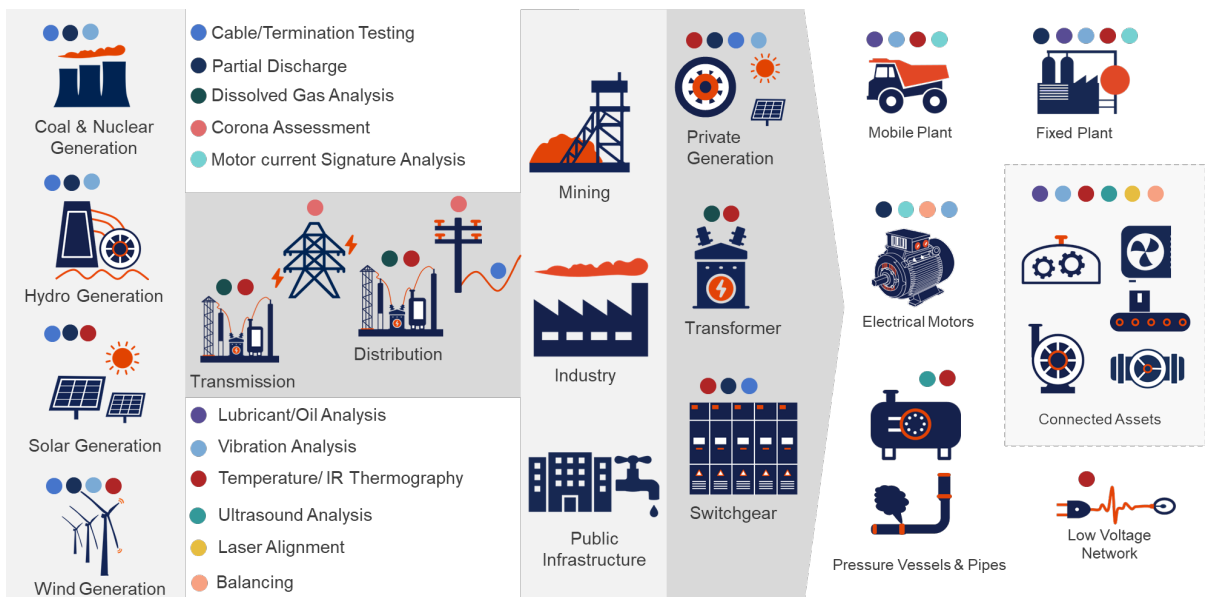
➤ Public Utilities

- Electricity generation, transmission and distribution
- Water boards
- Metro's and municipalities on electricity distribution, as well as water treatment and supply
- Rail and port infrastructure and plant

Engineering intelligent condition monitoring solutions

enabling in-time
monitoring and
diagnostic services,
supporting reliability
improvement initiatives
designed to drive
sustained plant integrity

We specialise in custom solutions for a wide range of **asset types, from electricity generation through transmission and distribution, to the various electrical and mechanical equipment** used to produce value in organisations.



Our Reference Clients

We are privileged to have a long list of clients, most of whom have been clients for many years. Below are some of our key references:




Our Commitment

Values

We earn the right to grow through:




Innovation and Initiative



Driving exceptional results



Integrity and Accountability



Passion for what we do

Quality

Quality is not just a goal, but the foundation of our business, driving us to continuously refine our processes and provide exceptional value to our clients. Our commitment to quality extends to our responsive and effective handling of any concerns, demonstrating our dedication to our customers.

Safety

We are proud of our NOSA 5-star rating! Our field teams routinely operate in High-Voltage and Medium-Voltage substations as well as on heavy plant and machinery. Safety is thus of the highest importance and our focus is on maintaining our impeccable safety record.

Free Resources

We empower our clients to master the intricate landscape of condition monitoring. By demystifying complex methodologies and technologies, we transform data into actionable insights. To fuel this understanding, to clients and non-clients alike, we offer a comprehensive library of freely accessible resources – in-depth technical articles, compelling case studies, and practical tools – equipping individuals with a better understanding of condition monitoring.

Resources

Category Selection

All resources ☐ Webinars ☐ Brochures ☐ Case studies ☐ Edu-series ☐ Podcasts ☐ Videos ☐ ConMon Technologies ☐ ConMon Unpacked ☐ TechTalks ☐ Electrical Discharges ☒ Technologies ☐ Cables ☐ Motors ☐ Switchgear ☐ Transformers ☐ Terminations & Joints ☐

Showing results 1 - 5 of 5

Partial Discharge Failure in Medium Voltage Motors

Partial discharge (PD) measurements have long been used to assess the condition of the electrical insulation in [Medium Voltage Motors](#)

[Download](#)

Introduction | Partial Discharges vs Partial Arcing

Electrical discharges (ED) in MV power circuits are (1) Partial Discharges (PD) and (2) Partial Arcing (PA). Partial [Discharges vs Partial Arcing](#)

[Download](#)

Technical Discussions and Reliability Solutions

TechTalks are to be used in the electrical field to assist engineers with the latest technologies available to add [Reliability Solutions](#)

[Download](#)

What is Partial Discharge?

Partial Discharge could appear in any point of the insulation system as electrical stress, by exceeding the dielectric strength. When referring to surrounding media, we think of air or other gas that fills the cavities or voids present in solid dielectrics (insulators, capacitors, joints) or air bubbles present in liquid dielectrics (transformer oil for example).

PD represent by this way that, only partially bridge small portion of electrical insulation between phase conductor and ground or between two phase conductors. Each discharge is the result of an electrical breakdown of an air pocket within the insulation.

PD could appear on the surface of solid dielectrics (surface PDs) and partial discharges are also those generated by gaseous insulation surrounding the protrusions on insulators, their called corona discharges. The main objective is to identify partial discharge defects before they can turn into failures.

Visual inspection of MV components

Visual inspection is valuable, but insufficient for a comprehensive condition assessment of most forms of electrical plant and equipment. In conducting a visual inspection, visible defects are evident, but many defects remain unseen because they are hidden below the surface or out of sight. In many instances it is impossible to take the asset out of service and assessments must be conducted during operation. Therefore, it is best to combine visual investigation with objective, non-invasive, engineering processes including on-line condition assessments. Note that an untrained eye can miss small critical defects that could turn into failures.

Acoustic view of insulation stresses caused by partial discharges

There are two primary causes of failure of power electrical equipment, viz. overloading or insulation breakdown. Partial discharge is both a leading cause and indicator of insulation failure, and is particularly valuable for condition assessment of the electrical plant.

The main objective is to identify defects before they can turn into failures. By implementing on-line condition assessment methods, this low assessment method + comparison to operation of system voltage and operating temperature under normal and electrical stresses, this will greatly enhance the reliability of the plant.

Condition risk levels can be assigned to all the critical electrical components within the power system. Understanding and identifying the high risk components within the electrical system will provide information to permit timely replacement or corrective action to prevent unwanted and costly failures during production.

Covid-19 Lockdown | Electrical Plant Risk Profile

Electrical engineers should carefully consider the best practice to ensure the reliability of the plant and safety of the [Electrical Plant Risk Profile](#)

[Download](#)

Visit <http://www.martec.co.za/Resources> to download free resources.

TechTalk

What is Partial Discharge?

Compiled by John Blandif, January 2016, Rev 1

The scope

Partial Discharge (PD) could appear in any point of the insulation system as electrical stress, by exceeding the dielectric strength. When referring to surrounding media, we think of air or other gas that fills the cavities or voids present in solid dielectrics (insulators, capacitors, joints) or air bubbles present in liquid dielectrics (transformer oil for example).

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Tools and technologies

PD Detectors are hand held indicators of the presence of PD activity. Their purpose is to advise the operator of PD activity either for safety reasons or as an early warning to maintenance personnel that unwanted PD activity has started.

When PD activity has been detected several questions usually follow:

- Where is the PD being detected? (By which probe? What component is the discharge coming from?)
- What is the magnitude or severity of the PD?
- What is the nature of the PD?
- What are the maintenance requirements?
- What action should be taken to bring the PD to an end?

In order to answer these questions it is often necessary to employ more sophisticated equipment and techniques.

The key to the solution is the use of special sensors and purpose designed non-invasive measurement and analysis of PD in terms of:

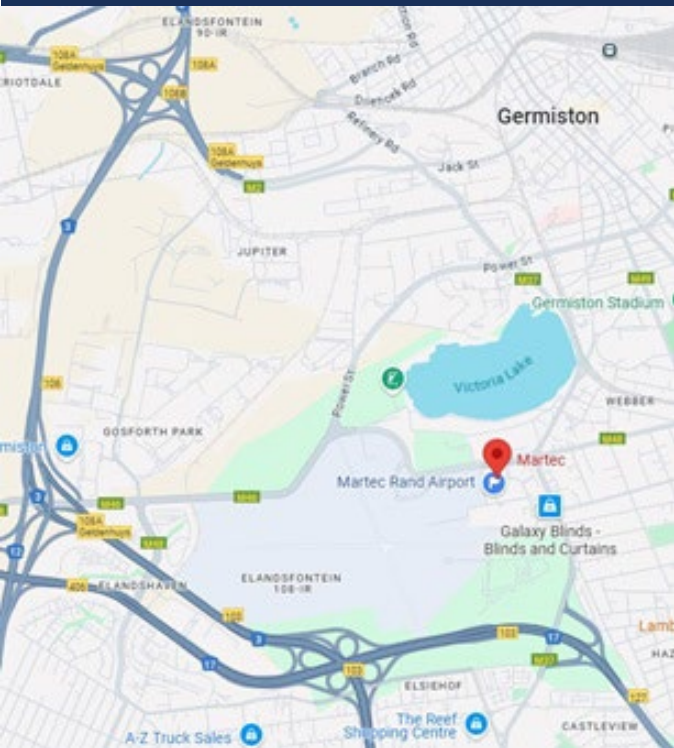
- The pulse magnitude and shape
- The detection rate
- The power and energy in the applied power voltage wave
- Analysis which can be conducted in the time or frequency domain or both.

Electrical Discharges

AC and DC testing

Contact Us

Martec



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