

# **SAFTRONICS**

## **COMPANY PROFILE**

POWER



DRIVES  
and MOTORS



TRANSFORMERS



ENERGY



INDUCTION  
HEATING

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## THE HISTORY OF SAFTRONICS

### THE POWER ELECTRONICS SPECIALISTS

The history behind Saftronics begins 48 years ago in 1966. Bonne Posma, the entrepreneurial founder of the company, noticed a gap in the South African power electronics market. Although the market was vigorous, and growing, there was not a single local company competing for the business; everything bought and sold in this sector was imported. This, he realised, presented a business opportunity. Trusting his instincts, Posma registered a company. For a name, he combined the letters, 'SA' (for South Africa) with a contraction of the word, 'electronics' to form a new word, 'Saftronics.' That was the beginning of the first local power electronics company in South Africa. From this, Saftronics grew into the specialised group of companies it is today; still serving the needs of a vibrant industry.

In just over a decade, Saftronics grew big and profitable enough to attract the interest of one of South Africa's large building construction groups, Murray and Roberts. M&R made Posma an offer. He accepted. M&R merged Saftronics with Stone Platt Electrical, a company in their own stable, to form a larger and more powerful entity, Amalgamated Power. This repositioning did not last. Within months, M&R switched back to the more familiar, and by then trusted name, Saftronics. Six years later, Saftronics changed hands again, this time attracting the interest of the Stratcon Group of companies. Stratcon acquired Saftronics to complement Stratford Engineering, a company that manufactured mechanical power transmission equipment.

For the next 13 years Saftronics flourished. Then, in 1999, a consortium of three investors bought the business, reversing the company into an 'off the shelf' entity acquired for this purpose. Aligning itself with the vision created by founder, Bonne Posma, nearly half a century earlier, Saftronics continues to lead local developments in power electronics; not only in South Africa, but increasingly in Africa.



**Photograph taken at Saftronics in 2009**

(L to R): Ryan Annandale (Managing Director), Bonne Posma (Founder)  
& Carlos Carvalho (Operations Director)

## OUR PHILOSOPHY

*Our philosophy is simple: to become your strategic partner, providing the best total solution for your application.*

Our success in achieving this simple goal stems from an ingrained determination to sell and maintain the most appropriate cost-efficient power electronic products available on the market. It's a policy defined by forward planning, specialised diversification, and reliable service and maintenance policies. More succinctly, Safronics strives to provide better products at better prices with exceptional levels of service.



## CURRENT SITUATION

### DIRECTORS

**Ryan Annandale**, Managing Director joined Safronics in 1993. Promoted to Technical Director in 1997, he recently celebrated his 20th anniversary at the Company.

**Graham Henning**, Financial Director joined Safronics in 1997.

**Carlos Carvalho**, Operations Director joined Safronics in 1997.

### PROFITABILITY

Since the take-over by current management, the company has shown consistent growth and profitability. Annual turnover for 2011 exceeded R 400 Million.

### MARKETS

Management divide the Safronics market into three segments.

Management of these markets requires careful forward planning. Long term planning, particularly, affects the fortunes of the company, most noticeably, annual turnover, running into multi-millions, flows from a market roughly divided into thirds - large three to six month projects, smaller ex-stock, one to three month projects, and more routine ex-stock sales and service activities.

Large projects take months, even years, to activate and finalise; quotations tendered today may only reach fruition a year, or longer, down the line. Constrained by these budgetary and approval hurdles, Safronics instinctively reaches further and further into the future to ensure that a solution needed today rests on the latest cost-efficient power electronic technology; it has to ensure that it prospers on the forefront competitive technologically. The pay-off is significant; Safronics can offer a range of appropriate solutions with the confident backing of informed, highly trained consultants.

### DIVERSIFICATION

Recognising the need for diversifying, Safronics appointed **Deon Van Staden** as Managing Director of Safronics Induction Heating, a company established in 1975 to manufacture and sell induction heating and melting units designed for forging, bending, brazing, soldering, heat treatment, and paint drying. Furnace products cover ferrous and non-ferrous alloys and precious metals. The company also imports higher frequency power source applications that include Relco Induction cap sealers and EFD induction heaters. A new factory is currently being constructed near Pretoria.





## SAFTRONICS POWER

### Ryan Annandale - Managing Director

Our Factory is located in 52 Kinson Road, Robertsham, Johannesburg

Ryan Annandale is Managing Director of Safronics Power, the company within the group focused on Containerised Power Rectifiers, and rectifier support systems - Copper Busbar systems and Rectiformers.

The Safronics power solution, in this niche, rests on a unique Containerised Rectifier system that incorporates the rectifier stack, a cooling system, a trickle charger, and power circuit, and the controls, in a single 6m air-conditioned container. Coupled to most transformers, the rectifier can supply power on demand from a variety of locations.

An in-house 'quick turnaround' AutoCAD design and modeling system enables Safronics Power to pre-manufacture Copper Busbars for later on-site assembly. A slotted design gives technicians a wide tolerance range to compensate for possible plant manufacturing errors.



### Containerised Power Rectifiers

The power Quality standard is 12 pulse units that can be configured up to a 36- pulse system and the Tap- Changer units comply with IEEE 519.

The cooling system is made of stainless steel piping. Closed loop De-min water system also included.

Flexible Busbars allow free movement in all temperature conditions.

In 2009, management upgraded the Johannesburg factory - capable of handling in excess of 100 tons of copper work per annum - to accommodate in-house work on Containerised Power Rectifiers. Our factory in Robertsham was built in 2012 and Safronics now has the capability of handling over 2 000 tons of copper work per annum. Safronics can also supply dies and forms adapted to customer requirements.



## SAFTRONICS DRIVES and MOTORS

### Carlos Carvalho – Operations Director

Our Factory is situated in 27 Heronmere Road, Booysens, Johannesburg

Saftronics Drives and Motors focuses on Drive Technology and service. Drive technology covers AC Drives LV and MV, DC Drives, Heater controllers, Soft Starters LV-MV, load monitors, Tacho / Encoders, LED and Induction Lighting, Semi-conductors, IGBT'S, Trailing Cable Testers and LV AC Motors.

**AC Drives -** To satisfy immediate customer needs, Saftronics Drives maintains a wide range of drives in stock, including HAPN Drives from the manufacturing plant in Shanghai. Saftronics technicians also upgrade and service variable speed drives throughout the country. In terms of a service agreement with Siemens, Saftronics Drives also conduct start-up and commissioning on all SIEMENS ROBICON VFDs in Southern Africa.

- **LV VVVF** range from: 220V (0.4kW - 2.2kW); 400V (0.75kW - 15kW) and 525V (30kW - 400kW).
- **MV Variable Speed Drives** range from: 3.3 kV (375 - 9000KVA); 6.6kV (375 - 18,000KVA) and 11kV (375 - 30,000KVA).

**DC Drives -** Saftronics is a major supplier of DC Drives available in a range from 400V -525V -1200V. Customers may request larger drives in this range.

### Heater Controller-

#### SH4 BURST FIRING UNIT

The SH4 operates according to the Cycle and span pot setting, with either short burst energy and long resting periods or vice versa. Range: 400V - 525V.

#### SH6 PHASE ANGLE THYRISTOR CONTROL UNIT

Controlled, effective, reliable and user friendly, the SH6 series phase angle controller provides system flexibility and productivity to any element control systems. Range: 400V - 525V.

**Soft Starters-** Part of the HAPN Range that Saftronics Imports. Ranges: **LV:** 380V (2.2kW - 22kW); 380V/525V (7.5kW - 650kW); 1000V (55kW - 450kW). **MV:** 3.3kV (860kW - 2400kW); 6.6kV (950kW - 4410kW); and 11kV (880kW - 5880kW).

**Load Monitors-** Imported from CG Global (previously Emotron). Range: 240V - 400V - 525V - 600V.

**Tacho/Encoders-** Agents for Baumer Hubner. Rotary speed sensor (DC Tachogenerator) for drive, control and measurement technology in all industries with high demands of ruggedness

**LED and Induction Lighting-** LED Lighting is 50- 80% more efficient than the standard energy savers.

**Semiconductors-** Stockist of a wide variety of Semiconductors ranging from 16 to 4000 amps with voltages ranging from 800 to 4000V are stocked. Range covers Diodes, Thyristors, Mains frequency and High frequency I.G.B.T'S , Gate Turn off Thyristors, Low and Medium Voltage and High Frequency. Saftronics are the agents for Mitsubishi General Electric Westing House Semiconductors.



**"THE SAILER"**  
Variable Speed Drives

220V	0.4kW - 2.2kW
380V	0.7kW - 15kW



**SIEMENS**  
SIEMENS SIMOTICS  
LV AC Motors



**Trailing Cable Testers**  
Saftronics has been manufacturing Trailing Cable Testing machines since 1978. Cable Testers size:  
Small Unit: 16-35mm2  
Large Unit: 50-95mm2





## SAFTRONICS TRANSFORMERS

**Johann de Bruto – Operations Manager**

Located at 52 Kindon Road, Robertsham, Johannesburg.

### Saftronics are not transformer importers.

Saftronics Transformers is a centre of unique excellence, the division within the group responsible for transformers and associated services.

Saftronics Transformers handles the manufacture, assembly, testing and repairs of transformers. Under Operations Manager, Johann de Bruto, the company adheres to a strict regime whereby in-house project managers source certified, approved materials (and manufacturing expertise) from within the group to ensure customers take eventual delivery of solutions that conform to optimal manufacturing standards and design specifications.

Designs cover a variety of transformer applications - Furnace, Multi-pulse Rectifying, Power, Distribution and other special application purposes. Saftronics manage the design and manufacture of each transformer as a project. Project managers conduct in-depth design reviews of manufacturing facilities at the order stage to ensure that the plant meets all the specified design parameters.

To maintain integrity, the manufacturing of the larger transformers (above 10MVA), project managers adopt manufacturing protocols defined by Vendor Drawing and Data Requirements (VDDR) – a quality based document system that tracks design specification data from 'start to finish'. The Manufacturing and quality is closely monitored via our VDDR system and manufacturing plans are updated regularly.

All transformers supplied are designed and tested to the relevant IEC, BS, IS and SANS specifications.



**Saftronics Transformers. Test Laboratory with test a capacity up to 20MVA 132kV.**



**Transformers ready for Tanking.**



**Vacuum Oven - SCADA controlled and monitored.**

The Saftronics Transformer facility incorporates a 25-ton overhead crane, a SCADA controlled test laboratory, and a fully monitored vacuum dehydration oven, oil storage and treatment plant for degassing and oil drying.





## SAFTRONICS ENERGY

**Jaco Louw - Operations Manager**

Located at 27 Heronmere Road, Reuven, Booyensens.



SAFTRONICS ENERGY emerged under the Saffronics umbrella to formulate power factor solutions (*a measurement of how efficiently a customer consumes electrical power*) to improve power supplies 'polluted' by 'non-sinusoidal' (*'disruptive'*) loads; a problem associated with the overloaded Southern Africa power grid and a linked demand for power from South Africa's neighbouring SADEC economies (*power factor irregularities affect all 3-phase AC electrical supply operations to varying degrees*).

This is where Saffronics Energy plays an optimising role; not only supplying equipment to achieve Power Factor unity,

but also offering on-site factory analysis of power factors, linked to detailed reports that enable customers to make informed Energy saving decisions. Solutions range from system load profile recordings, harmonic analysis, energy consumption reports and website based energy meters. Using this data, Saffronics Energy formulates customised solutions adapted to local network conditions, or customer requirements.



## SAFTRONICS INDUCTION HEATING

### Deon Van Staden – Managing Director

The newly built factory is situated at 45 Kambathi Street, N4 Gateway Industrial Park, Willow Park Manor Ext 65, Pretoria.

Saftronics Induction Heating (Pty) Ltd is a Design, Manufacturing and Sales Company of Induction Heating and Melting units.

The company adapts, designs and develops products specifically for the South African environment. Local design and manufacture covers Product and Handling equipment for forging, bending, brazing, soldering, heat treatment and paint drying.

We import and support power sources for applications needing higher frequencies. This includes Relco Induction Cap sealers and EFD Induction Heaters.

The factory can handle a full range of ferrous and non-ferrous alloys and precious metals in its furnaces

We offer:

- Box furnaces from 20kg to 2500kg capacity.
- Steel bodied furnaces with shunts and lids from 600kg up to 20ton capacity.
- Lift-swing furnaces for Non-Ferrous metals in crucibles up to 300kg bronze.
- Induction Billet heaters to suit customer requirements.
- Power sources from 10kW to 5000kW output.
- Operating frequency from 50Hz to 25kHz.







## RECENT PROJECTS

### A 3 Pronged Project - Manufactured, delivered and commissioned within spec.

Saftronics Recently completed a retro fit on a mill refurbishment that proved that our divisions are perfectly suited to work together.



**The project involved 3 Saftronics Divisions:**

#### 1. Saftronics Transformers and Saftronics Energy division.

##### A 1.6MVA Distribution Transformer and board including relevant Switchgear

A total of 1800 manhours was put into this section of the project which consists of MV switchgear and a LV distribution board that was manufactured at our Robertsham branch. In order to save costs for our client a specially built cable

bridge was designed - 4,8m high, and 12 meters long it ensures that trucks can still pass under the bridge, without disrupting the power cabling.



*The Saftronics purpose designed, manufactured and installed cable bridge.*

#### 2. Saftronics Drives and Motor Division Zone 21/22 Lights allocated for the refurbished plant.

The lighting in the mill is all rated for Zone 21/22, as the area that the lights are installed in is a very dusty environment. A total of 3.7km of Cable was required to complete the installation of the lights that are suspended from cable trays.

#### 3. Saftronics Energy Division

##### Power Factor correction Panel

As the power factor load at maximum demand was registering at 0.65 lagging, a power factor correction panel rated for 850KVAR was installed. The panel consisted of oil filled capacitors and detuning reactors to protect the capacitors against harmful harmonic currents.

Subsequent to the installation our client is enjoying a lower maximum demand charge due to a system that is now running at an acceptable power factor. The financial savings gained from this installation means that the payback period on this project is only 12 months.

### Crossing Borders for Service Excellence.

In a natural occurring lake just 80Km from Dakar (Senegal), Grande Côte Operations SA decided to open up a Minerals mine, which, over an expected mine life of at least 20 years, is anticipated to produce on average approximately 85ktpa of zircon and 575ktpa of ilmenite (and small amounts of rutile and leucogene) when in full production.

Saftronics Qualified Robicon Engineers were on site to commission 14 various Siemens Robicon drives, varying in size from 800kW - 4.5MW.

Project Manager Adam Smits had this to say about our Technicians "Your team did a great job. We were very happy with the results and importantly your thorough methodical approach to the drive commissioning."



**DAKAR, SENEGAL.**  
Installing 14 Siemens Robicon Drives.



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