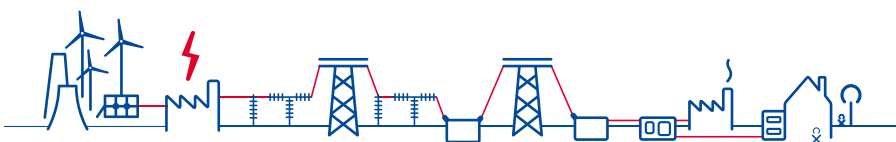




# SGB-SMIT POWER MATLA

Your dedicated partner  
of the SGB-SMIT Group

## GRID-CONNECTED TRACTION TRANSFORMERS



# SGB-SMIT AT A GLANCE

Combined, more than

# 450



## YEARS OF EXPERIENCE

Basis for know-how and  
for know-why

More than

# 3,500




## EMPLOYEES

take care of  
your project

In more than

# 80



## COUNTRIES

satisfied  
customers



## READY FOR YOUR MARKET

The SGB-SMIT Group manufactures transformers for applications worldwide. Sales and service centers on all continents ensure optimum processes.

Our products meet the requirements in accordance with the applicable national standards.



## PRODUCTS

- large power transformers
- medium power transformers
- large liquid-cooled distribution transformers
- liquid-cooled distribution transformers
- cast resin transformers
- shunt reactors
- series reactors
- phase shifters
- Lahmeyer-Compactstationen (compact substations)

Transformers from 50 kVA up to incl. 1,200 MVA in the voltage range up to 765 kV.



## QUALITY MANAGEMENT

The SGB-SMIT Group is certified in accordance with:

- DIN ISO 9001
- DIN ISO 14001
- DIN ISO 50001
- OHSAS 18001



## TECHNOLOGIES

Technologies for conventional and  
renewable energy.

# SGB SMIT POWER MATLA

## A MEMBER OF THE SGB-SMIT GROUP



SGB-SMIT POWER MATLA has over 70 years experience in successful design, manufacturing, testing, installation and commissioning of a full range of power and distribution transformers which include large power transformers of voltages up to 800MVA.

## SGB-SMIT POWER MATLA

SGB-SMIT POWER MATLA (Pty) Ltd is owned by SGB-SMIT (GmbH) and Power Matla.

SGB-SMIT, is the largest independent and pure-play transformer manufacturer in the world, with headquarters in Regensburg, Germany. They are represented on 5 continents in 8 countries with plants in Germany, the Netherlands, USA, Romania, Malaysia, India, China and the Czech Republic. With transformer expertise since 1913 they produce transformers ranging from 50 kVA up to 1,200 MVA.

Power Matla (Pty) Ltd is a locally owned black empowered company with investments in various portfolios within the renewable energy, ICT, mining and power utilities markets providing good shareholder value and solid returns.

The company consists of Large Power Transformers manufacturing plant in Pretoria and Distribution Transformers plant in Cape Town and supplies a full range of transformers, from generator step-up to transmission and distribution transformers. The range includes three-phase and single-phase units, auto-transformers, arc-furnace, locomotive and traction transformers, miniature sub-stations, NECRT's as well as shunt reactors.

## "CUSTOM DESIGNED"

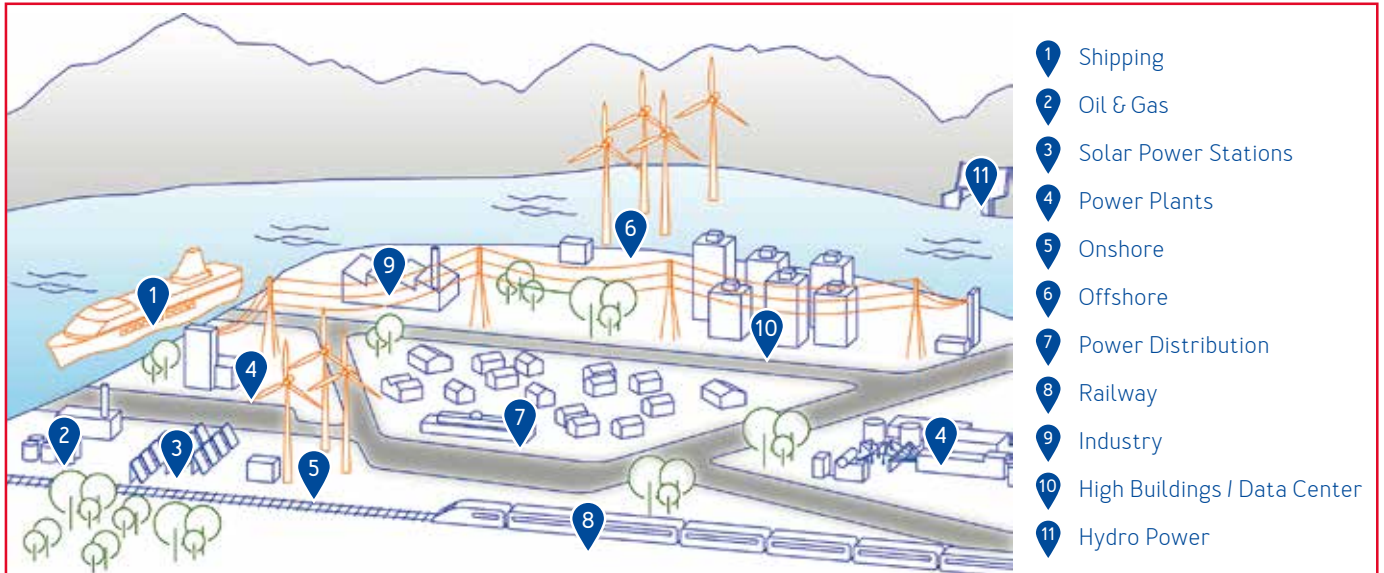
Every SGB-SMIT POWER MATLA unit is custom-made from standardised design elements and using uniform manufacturing operations. This flexible, but well co-ordinated approach ensures the highest quality of design and construction for all our transformers and makes the best possible use of the valuable knowledge and experience gained over the years and best practices developed in our factory.

The Large Power Transformer factory in Pretoria is a well-equipped factory and is amongst the biggest and most sophisticated transformer manufacturing plants within the Southern Hemisphere and one of two large transformer manufacturers within sub-Saharan Africa.

The Distribution Transformers factory in Cape Town has been manufacturing distribution transformers and miniature substations for more than 60 years.



# SMALL, MEDIUM AND LARGE POWER TRANSFORMERS ALL OVER THE WORLD



- 1 Shipping
- 2 Oil & Gas
- 3 Solar Power Stations
- 4 Power Plants
- 5 Onshore
- 6 Offshore
- 7 Power Distribution
- 8 Railway
- 9 Industry
- 10 High Buildings / Data Center
- 11 Hydro Power

## OVERVIEW

SGB-SMIT POWER MATLA has many years of experience in the design, manufacturing, installation and commissioning of grid-connected traction transformers for rail applications.

Traction power supply systems using singlephase traction transformers has been widely used because of the low cost and simple structure. SGB-SMIT POWER MATLA is able to produce a range of grid-connected traction transformers for the electrification of railways ensuring increased train efficiency and performance.

Electric traction is a highly advantageous substitute for electrification to conventional fossil fuel-based traction systems.

Traction transformers are an integral part of the electric traction system. The trackside/grid-connected power transformers are used for stepping down the voltage levels for the railway network. They are used between normal three-phase AC networks and single-phase catenary systems. The on-board locomotive transformers located on the train will use the overhead power to supply the train's traction motors at an even lower voltage.







## QUALITY, HEALTH, SAFETY & ENVIRONMENT

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The power transformer plant located in Pretoria (Gauteng) is a world class manufacturing facility and boasts a fully certified ISO 9001 quality management system, ISO 14000 environmental management system as well as the ISO 45001 health and safety management system.

At every stage during manufacturing, the materials and processes are inspected by suitably qualified and experienced inspectors to ensure all required standards and manufacturing practices are adhered to. Six-sigma systems are built into every manufacturing process in the factory to enhance the quality and documentation of our products.



## TYPICAL PROPERTIES OF GRID-CONNECTED TRACTION TRANSFORMERS

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Grid-Connected traction transformers are:

- Designed to withstand frequent short circuits
- Equipped with on load tap-changers
- Designed to operate in parallel with other grid-connected traction transformers
- Designed to withstand overloading





## TESTING

SGB-SMIT POWER MATLA utilises its experience of power transformers and history in traction transformers to design advanced solutions that provide their customers with reliable and compact transformers.

Using three dimensional finite element analysis important parameters such as impedances, cooling stability and short circuit durability are verified.

Every transformer at SGB-SMIT POWER MATLA is individually tested according to major international standards as well as, in accordance with any special tests required by the customer, and must pass all these tests before leaving the factory.

## ON-GOING SUPPORT

SGB-SMIT POWER MATLA provides their customers with on going support, building up long term relationships.

SGB-SMIT POWER MATLA closely supervises the transport, installation and commissioning of its products to ensure customer satisfaction.

Transformers are transported either oil or nitrogen filled.

## APPLICATION

As the congestion of the road and airways is becoming a major transportation concern for many developing and developed countries, governments are looking at projects like high-speed trains and tramways to ease this pressure. Thus, the traction transformer market is a key component of the overall growth of the rail transport industry.

SGB-SMIT POWER MATLA recognises this and is geared to supply a wide variety of traction transformers both on-board and trackside/grid-connected

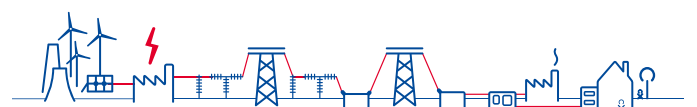






## EXAMPLES OF DESIGNS

MVA	40	24, 32-40
Voltage kV	88/2 x 26.75	88/27.5
Vector Group	Single or 3 Phase - on customer requirement	Single
Tapping Range	±10%	±5% to -5%
Termination	Open Air Bushings	Condensor type bushings on HV DIN type bushings on LV
Impedance	12,5%	11%
Cooling	ONAN/ONAF	ONAN/ONAF
Standards	IEC 60076	IEC 50329 & 60076
Fittings	Oil Level Indicators, Breathers, Pressure Relief Valves (PRV's) Isolation Valves, Gas Operated Relay	Oil Level Indicators, Breathers, Pressure Relief Valves (PRV's), Isolation Valves, Gas Operated Relay





# SGB-SMIT POWER MATLA

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