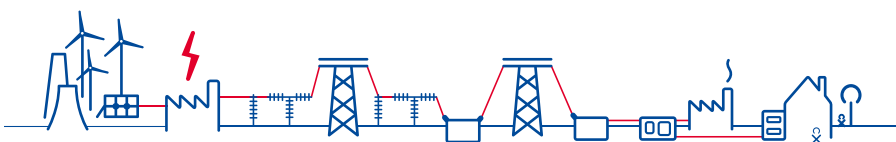




# SGB-SMIT POWER MATLA

Your dedicated partner  
of the SGB-SMIT Group

## ARC FURNACE 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 arc-furnace transformers for various applications.

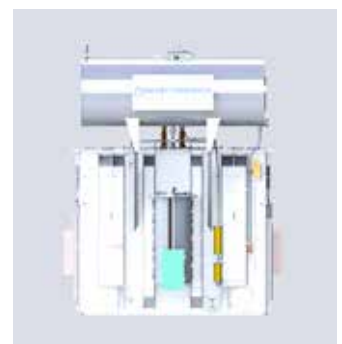
SGB-SMIT POWER MATLA is able to produce transformers for all furnace applications. A robust design guarantees mechanical strength for steel furnace operation and temperature control for continuous high loads in ferro-alloy operation.

A number of industry applications require specific industrial transformers due to the usage of power (current) as a major resource for production. Electric Arc Furnaces need a specific design to supply the necessary power at a lower voltage level. These transformer types are called special or industrial transformers, as their design is tailor-made for high current solutions for industry applications.

Arc furnace transformers are able to deliver high currents over a wide range of voltages. These transformers are normally designed as three phase units and are typically used in the steel melting and metallurgical industries.

SGB-SMIT POWER MATLA can offer arc furnace transformers in accordance with customer requirements for either long-arc (steel) and short-arc (ferro-alloy) operations. These type of transformers are characterised by high secondary current, for steel up to 90kA and for ferroalloy up to 160kA electrode current and a wide secondary voltage range. Furnace transformers have secondary voltages up to 1500V.

The secondary voltage is regulated by an on-load tapchanger (OLTC) located in the high voltage (primary winding) or in an intermediate circuit of a two-core design (booster regulation) within the transformer tank. Arc furnace transformers are used for melting scrap metal and are normally designed as three phase units.







## 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.

## COOLING

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Arc furnace transformers are normally oil filled and water cooled (OFWF) and are placed adjacent to the furnace. Different position of the cooling equipment may be adopted according to customer specification.

Arc-furnace transformers are designed to IEC and IEEE standards.

## DESIGN METHODOLOGY

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SGB-SMIT POWER MATLA is aware that proper design methodology is necessary to ensure that the arc furnace transformer works efficiently within the application that it is required for. Due to the fact that the load cycles vary depending on size and metallurgical requirements, these factors are taken into consideration upon commencement of design.

SGB-SMIT POWER MATLA has optimised existing designs to ensure better efficiency and quality of the furnace application.

During furnace operations, arc furnace transformers undergo thermal and mechanical stresses as a result of frequent short circuits on arc or because of various operations during daily melting processes. It is important that designs of this type of transformer are able to withstand these stresses and this function is taken into consideration when transformers are designed prior to manufacture.

Arc-furnace transformers are manufactured either single or three phase.

SGB-SMIT POWER MATLA manufactures core-type designs.

## REFERENCE LIST

YEAR	MVA	RATIO kV/kV	QTY	V GROUP	SERIAL NO	CUSTOMER	TAPCHANGER	WORKS ORDER
1974	5	6.6/0.218-0.141	1	IIi	26550	McWILLOWS IRON & STEEL	DETC	W2650051974
1977	8.33	21-33/0.192	7	IIi	27292 - 27298	SAMANCOR	UCFDE 380/500	W761300
1979	15.5	21.5/0.3	1	IIi	27562	RAND CARBIDE	UCBLE 250/1200	W965012
1979	30	33/0.280-0.120	1	Y/III	27566	ANGLO TRANSVAAL FERRALOYS	UZCRW 250/6600	W965013
1980	8.3	21/0.180-0.117	1	IIi	27672	RAND CARBIDE	UOV1000	W965015
1980	20	21.5/0.119-0.112	1	Y/III	27701	RAND CARBIDE	UZEDT 250/500	W065020
1983	8	33/0.236-0.211	1	Y/III	28315	DAVSTEEL	UZERN 250/300	W365031
1984	45	33/0.66-0.402	1	Y-D/III	28468	SCAW METALS	UCGYD380/1500 + UOV1000	W465032
1984	30	33/0.280-0.120	1	Y/III	28525	FERRALOYS MACHADADORP	UZFRN 250/600	W465035
1987	12	11/0.171-0.095	1	D/III	28817	SAMANCOR MEYERTON	UZELR 200/600	W765047
1987	25	33/0.46-0.235	1	Ddo	28874	ISCOR VANDERBJLPARK	MRM1111 350/110	W765045
1987	10	33/0.4-0.1	6	IIi	28902 - 28907	PYROMET FOR CHROMECORP	MR	W765050
1988	24.42	11/0.643-0.406	3	Ddo	28918 - 28920	MIDDLEBURG STEEL	MRUIII	W865051
1988	3.5	6.6/0.3-0.143	3	IIi	28964 - 28966	WESTERN PLATS MARIKANA	UZELT 200/600	W865054
1988	25	33/0.633-0.240	1	Ddo	28982	ISCOR NEWCASTLE	MRMIII 350-110	W865054
1988	5.5	6.6/0.45-0.145	3	IIi	29004 - 29006	GOLDFIELDS NORTHAM PLATS	MR	W865055
1988	32.5	33/0.336-0.081	1	Y/III	29042	CMI LYDENBURG	MR	W865056
1989	16	33/0.34-0.175	3	IIi	29068 - 29070	TRANSALLOYS HIGHVELD STEEL	MR MI 500-60	W965057
1989	11	33/0.45-0.23	3	IIi	29103 - 29105	CHROMECORP TECHNOLOGY	MR MI 500-60	W965062
1989	7.39	11/0.43-0.37	1	Ydi	29120	GEC FOR CHLOORKOP	DESTA 3-5-315	W965063
1989	7.39	11/0.43-0.37	1	Ddo	29121	GEC FOR CHLOORKOP	DESTA 3-5-315	W965064
1989	8	33/0.23-0.12	3	IIi	29135 - 29137	FERRALOYS CATO RIDGE	MR MI 500-60	W965065
1990	13.4	33/0.6-0.202	3	IIi	29221 - 29223	IMPALA PLATINUM	MR MI 500-60	W965069
1991	75	33/0.85-0.447	1	D/III	29341	SCAW METALS	MR 3* MI 1200-110	W165072
1993	25	33/0.431-0.184	1	IIi	29548	SAMANCOR MEYERTON	UCGRE 280/1200	W361033
1994	12	11/0.171-0.095	1	Ddo	29569	SAMANCOR MEYERTON	UZELT 200/600	W461044
1994	6	33/0.179-0.166	1	Ddo	29559	NAMAKWA SANDS	MR MIII 600D	W361041
1994	13.25	33/0.37-0.288	3	IIi	29604 - 29606	CHROMECORP RUSTENBURG	MR MI 600	W461062-4
1995	13.5	11/0.34-0.2	1	Diii	29653	HARTLEY PLAT HARARE	MR MIII 600D	W461082
1995	12.33	33/0.4-0.192	3	IIi	29697 - 29699	HERNIC FERROCHROME	MR MI 501-72.5	W561114-6
1995	12.33	33/0.4-0.192	3	IIi	29708 - 29710	HERNIC FERROCHROME	MR MI 501-72.5	W561122-4
1995	15	33/0.453-0.216	6	IIi	29715 - 29720	CHROME RESOURCES RUSTENBURG	MR MI 802-72.5	W561125-30
1996	8.5	33/0.146-0.082	1	Y-D/iii	29853	ADVALLOY SAMANCOR	MR MIII 350 Y-72.5	W661211
1996	6	33/0.220-0.092	1	Y-D/iii	29854	ADVALLOY SAMANCOR	MR MIII 350 Y-72.5	W661212
1997	13.4	33/0.2356-0.1408	3	IIi	29882 - 29884	SILICON NEWCASTLE	MR MI 351-72.5	W661222-24
1997	19	33/0.2952-0.1507	3	IIi	29885 - 29887	SILICON NEWCASTLE	MR MI 601-72.5	W661225-27
1997	15	33/0.1532-0.2163	6	IIi	29895 - 29900	CHROME RESOURCES RUSTENBURG	MR MI 802-72.5	W761239-44
1997	12.33	33/0.192-0.401	1	IIi	29901	HERNIC FERROCHROME	MR MI 501-72.5	W761245



YEAR	MVA	RATIO KV/KV	QTY	V GROUP	SERIAL NO	CUSTOMER	TAPCHANGER	WORKS ORDER
1997	13.4	33/0.2-0.6	1	I/i	29954	IMPALA PLATINUM	MR MI 600-72.5	W761273
1998	18	33/0.36	3	I/i	30002 - 30004	TITACO HERNIC	MR MI 802-72.5	W861291-93
1998	15	33/0.45-0.21	3		30009-30011	CHROME RESOURCES WONDERKOP	MR MI 802-72.5	W861300-02
1999	40.625	33/0.3359-0.0805	1		30135	CMI LYDENBURG	MR MI 802-72.5	W962360
2000	15	33/0.4533-0.2163	7		30155.59 - 30164	XSTRATA WONDERKOP	MR MI 802-72.5	W061373,76-81
2000	13.4	33/0.6-0.202	3	I/i	30165 - 30167	IMPALA PLATINUM MINERAL PROCESS	MR MI 802-72.5	W061382-84
2001	20	33/0.4-0.23	6	I/i	30238 - 30243	BATEMAN TITACO SA CHROME	MR MI 802-72.5	W161424-29
2001	80	132-88/33	2		30197 - 30198	ESKOM DISTRIBUTION - SA CHROME	MR MI 802-72.5	W062638/9
2001	21	33/0.23-0.4	4	I/i	30319 - 30322	TITACO SAMANCOR	MR MI 802-72.5	W161470-73
2002	21	33/0.23-0.4	3	I/i	30368 - 30370	TITACO SAMANCOR	MR MI 802-72.5	W261500-02
2002	75	33/0.8498-0.477	1		30347	SCAW METALS	MR MI 802-72.5	W262677
2003	13.5	11/0.34-0.2	1	D/III	30484	MAKWIRO PLAT ZIMBABWE	MR MIII 600D	W361560
2004	21	33/0.23-0.4	3	I/i	30552 - 30554	PYROMET SAMANCOR	MR MI 802-72.5	W462001-3
2004	26	33/0.46-0.23	3	I/i	30506 - 30508	HERNIC FERROCHROME	MR MI 802-72.5	W461570-71
2004	41	33/0.096-0.352	1		30558	XSTRATA SA CHROME	MR MI 802-72.5	W462005
2004	26	33/0.46-0.23	4	I/i	30506 - 30508	HERNIC FERROCHROME	MR MI 802-72.5	W461570-71
2006	13.4	33/0.6-0.202	2	I/i	30682 - 30683	IMPALA PLATINUM MINPRO	MR MI 600-72.5	W662028-9
2007	24	11/4061.643	1	I/i	30820	MOGALE ALLOYS	MR MI 802-72.5	W0761006
2011	13.4	33/0.202-0.600	1	I/i	W1162081	IMPALA PLATINUM MINPRO	MR MI 600-72.5	W1162081
2012	13.4	33/0.6-0.202	1	I/i		IMPALA PLATINUM	MR MI 600-72.5	W1162081
2015	60	33/0.44-0.083	1	Ddo	W1461448	TRONOX NAMAKWA SANDS	MR DU 111 600-72.5	W1461448
2016	60	33/0.44-0.083	1	Ddo	W1461448	TRONOX NAMAKWA SANDS	MR DU 111 600-72.5	W1461449



# SGB-SMIT POWER MATLA

Your dedicated partner  
of the SGB-SMIT Group

## CONTACT



### STARKSTROM-GERÄTEBAU GMBH

Regensburg • Germany  
Phone +49 941 7841-0



### SÄCHSISCH-BAYERISCHE STARKSTROM-GERÄTEBAU GMBH

Neumark • Germany  
Phone +49 37600 83-0



### ROYAL SMIT TRANSFORMERS B.V.

Nijmegen • The Netherlands  
Phone +31 24 3568-911



### SMIT TRANSFORMER SERVICE

Nijmegen • The Netherlands  
Phone +31 24 3568-626



### RETRASIB S.A.

Sibiu • Romania  
Phone +40 269 253-269



### SGB CZECH TRAFO S.R.O.

Olomouc • Czech Republic  
Phone +420 605 164860



### BCV TECHNOLOGIES S.A.S.

Fontenay-le-Comte • France  
Phone +33 251 532200



### SMIT TRANSFORMER SALES INC.

Summerville, SC • USA  
Phone +1 843 871-3434



### SGB-USA INC.

Tallmadge, OH • USA  
Phone +1 330 472-1187



### OTC SERVICES INC.

Louisville, OH • USA  
Phone +1 330 871-2444



### SGB MY SDN. BHD.

Nilai • Malaysia  
Phone +60 6 799 4014



### SGB TRANSFORMERS INDIA PVT. LTD.

Chennai • India  
Phone +91 44 45536147



### SGB CHINA CO. LTD.

Yancheng • P.R. China  
Phone +86 515 88392600



### SGB-SMIT POWER MATLA (PTY) LTD

Pretoria West • South Africa  
Phone +27 12 318 9911  
Cape Town • South Africa  
Phone +27 21 505 3000

#### SGB-SMIT POWER MATLA

1 Buitenkant Street, Pretoria West  
8 Eliot Avenue, Epping 2, Cape Town  
Phone +27 12 318 9911  
Fax +27 86 524 7167  
e-mail [info@sghsmitpowermatla.com](mailto:info@sghsmitpowermatla.com)

[www.sghsmitpowermatla.com](http://www.sghsmitpowermatla.com)  
[www.sgb-smit.com](http://www.sgb-smit.com)

