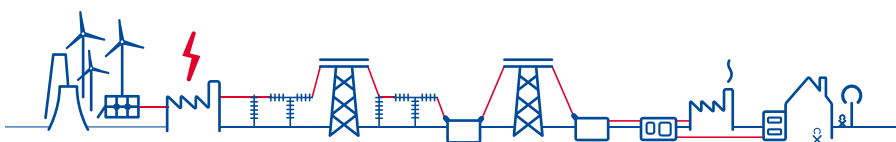


# TRANSFORMER ACCESSORIES



# 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®

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 CALIDUS: A MEMBER OF THE SGB-SMIT GROUP



SGB-SMIT CALIDUS supplies transformer accessories to many transformer manufacturers for use in distribution and power transformer equipment.

## SGB-SMIT GROUP

The SGB-SMIT Group is the result of a merger of locally operating, highly successful medium-sized companies and today represents an efficient international network. A combination which unites the “best of both worlds” for our customers: globally speaking, we offer world-class quality and market expertise. Locally speaking, our customers benefit from lean structures and short distances as regards planning and production, transport and service. Due to the close cooperation with our customers, this results in focused development. Permanent and structural improvement of the ongoing projects ensure fine-tuning of the services required locally on site.

SGB-SMIT CALIDUS supplies a complete range of transformer products which includes T4 high density transformer board insulation; cylinders; spacers; angle rings; clack strips; clack blocks; stripes; clacks; ribs; end support; low density transformer board insulation; combie – outer collar; inner collar; din board - corrugated board; cylinder; strips. transformer press paper insulation; transformer accessories; tubes and cylinders as well as copper and aluminium strip and rods which is available in both the Pretoria and Cape Town operations.

## OVERVIEW OF CAPABILITY

SGB SMIT CALIDUS transformer accessories range includes remote mount thermometers; pressure relief valves; tapchangers; Buchholz relays; oil level indicators; oil temperature indicators; silica gel breathers; pressure safety valves; transformer bushings; transformer caster wheels; pressure vacuum gauges as well as various types of valves which are available from both the Pretoria or Cape Town operation.



## PRODUCTS

SGB-SMIT CALIDUS supplies transformer accessories which meet the high requirements for use in electrical equipment. Our products are mainly used in distribution and power transformers up to 400 kV Class, of all sizes and sophistication and are certified to conform to the latest IEC standards.

SGB-SMIT CALIDUS's quality systems are certified under ISO 9001.

## QUALITY

SGB-SMIT CALIDUS is committed to total customer satisfaction by aspiring to become the globally preferred supplier of transformer insulation products and accessories.

To this end, we shall continually improve the quality of our products, organisational processes and people to attain best-of-class levels internationally.

## RANGE OF ACCESSORIES

SGB-SMIT CALIDUS is a distributor of Cedaspe, Viat and Elmek range of transformer accessories suitable for power and distribution equipment.



## ELMEK ACCESSORIES

ELMEK is a manufacturer and exporter of all kinds of equipments and accessories for oil immersed transformers. The range includes tap changers; Buchholz relays; thermometers; oil level indicators; air breathers; pressure safety valves, bushing insulators; wheels and oil draining devices.





## BUCHHOLZ RELAYS

A Buchholz relay is a protection device for monitoring the gas and oil movements in oil immersed transformers. It is designed to detect the faults and minimise the propagation of any damage which might occur within oil circuit, induction coils etc. The examples of the faults which could cause gas accumulation or strong oil flows in the oil circuit are as follows:

- short-circuited core laminations
- broken-down core insulation
- overheating of windings
- bad contacts
- short-circuit between phases
- earth faults
- puncture of bushing insulators inside tank
- falling of oil level due to leaks
- ingress of air as a result of defective oil circulation system



## OIL LEVEL INDICATORS

Form-A Oil Level Indicators are used in distribution transformers of less than 5000 kVA for the purpose of monitoring transformer oil levels. Indicator part has no contact with the oil.

Oil level indicators do not allow oil leakage at temperatures of 110°C, 0,5 bar effective pressure and vacuum.

Case: Injected Aluminum, electrostatic powder painted (RAL 7033 or RAL 7001)

Indicator dial: Aluminum sheet, coated with black paint and yellow serigraphy

Pointer: Yellow painted brass

Indicator glass: Polycarbonate (UV resistant)

Joint Gasket: Nitrile Rubber, hardness: 70 Shore A

Float: Oil resistant, closed cellular type special plastic foam



## OIL TEMPERATURE INDICATOR

An Oil Temperature Indicator or OTI is used for temperature indication with integrated control and alarm functions. These indicators are designed for use where the point of measurement is not easily viewed by personnel requiring separate or remote indication.

## THERMOMETER

This type of thermometer is designed for indication of oil temperature in both transformers with expansion conservators or hermetically sealed type transformers.

It is fitted with two electric switches and a maximum indicating pointer. The thermometer operates efficiently under very hot and very cold weather conditions.



## PRESSURE SAFETY VALVE

Pressure Safety Valves are used to prevent the rapid build up of pressure within the transformer tank that might cause an explosion hazard. They are designed to operate and discharge any pressure greater than their set value to the atmosphere.





## GAS-ACTUATED PROTECTIVE RELAY

The gas-actuated protective relay is designed to detect faults as well as to minimise the propagation of any damage, which might occur within oil-filled transformers. The relay is therefore particularly effective in case of:

- short-circuited core laminations
- broken-down core bolt insulation
- overheating of some part of the windings
- bad contacts
- short circuits between phases and turns
- earth faults
- puncture of bushing insulators inside tank

Furthermore the relay can prevent the development of conditions leading to a fault in the transformer, such as the falling of the oil level due to leaks, or the penetration of air as a result of defects in the oil circulating system. The adoption of other forms of protection does not therefore exclude the use of the gas-actuated Buchholz relay, as this device is the only means of detecting incipient faults, which if unnoticed, can cause heavy failures.

## TRANSFORMER BUSHINGS

Various sizes of transformer bushings are available from LV bushings 250A DIN 42530 up to 3150A DIN 42530 to HV bushings up to 36kV.

Outdoor or indoor bushings should be specified.

## TRANSFORMER CASTER WHEELS

The caster wheels are supplied either zinc plated, galvanised or wet or electrostatic power painted. The wheel housing is manufactured from mild steel and the wheels from cast iron.





## VIAT TRANSFORMER ACCESSORIES

SGB-SMIT CALIDUS supplies various transformer accessories from the VIAT range which include:

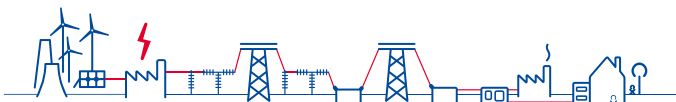
- Pressure relief valves - these range from T50, 80 and 125 up to 150, with or without switch
- Bimetal thermometers and pressure vacuum gauges - with or without contacts
- Gas-actuated Buchholz relays - 25, 50 and 80mm
- Radiator throttle valves - 80mm to 125mm
- Liquid level gauges and indicators - 100mm, 140mm, 150mm and 250mm.

## SILICA GEL TRANSFORMER BREATHERS

SGB-SMIT CALIDUS range of breathers has been redesigned to better suit customer specifications.

## FUNCTION

The sole function of Silica Gel Breather is to dehydrate (remove moisture) the air and to remove dust particles of the air breathed in by the transformer.





## OPERATION AND WORKING

Silica Gel (Air dehydrating) breathers are transparent hollow cylinder tubes which contain chemically pure silicium salt (Silica Gel) with cobalt indicator. This grade of Silica Gel is called as "indicating grade" of Silica Gel.

The range includes the following improvements:

- Increase in ranges supplied
- The walls of the silica gel containers are 100% UV protected shatterproof polycarbonate. They are built up from cylinders of polycarbonate with specially designed tapered male/female ends that give a seal when under pressure. The joints are permanently fused using a special solvent.
- The SA1100 and SA200 breathers are built up using standard size container cylinders of 100 and 200mm diameters. Therefore the breathers can be built up to any reasonable length using the appropriate number of cylinders, meeting the transformer oil capacity.
- The polycarbonate oil bowl system is more than twice the length of the original, eliminating the possibility of silica gel being contaminated by oil.
- The SA 200 range of breathers are also made up in multiple units, both in series and parallel.
- SGB-SMIT CALIDUS can offer transformer breathers filled with Envirogel, which is a self-indicating silica gel desiccant. This desiccant is orange/yellow in colour when active, but turns green when saturated.



## MAINTENANCE

- Inspections should be carried out weekly where practical, otherwise monthly as a minimum.
- The oil baths should be checked for stains or cracks and where applicable, replaced or cleaned and filled with clean oil.
- Where silica gel has turned pink the percentage that has turned pink needs to be replaced.
- The container should be checked for cracks, warping and external damage.
- Viewing surface must be clean
- Check gaskets and sealing washers for damage and ageing, replace where necessary
- Breathers must be airtight.


It is strongly emphasised that correct and timeous inspections and servicing of transformer breathers prevents oil contamination and leads to cost savings due to less frequent maintenance of transformer oil (or even failure).

Sizes	Approximate weight of gel (kg)	Estimate oil capacity in litres
SA 90	0.50	1400
SA 100-1	0.61	1830
SA 100-2	1.14	3420
SA 100-3	1.72	5160
SA 100-4	2.30	6900
SA 100-5	2.89	8670
SA 100-6	3.48	10440
SA 200-1	2.10	6300
SA 200-2	3.94	13000
SA 200-3	5.78	17200
SA 200-4	7.62	25200
SA 200-5	9.46	30000
SA 200-6	11.30	37600
SA 200-7	13.14	43800
SA 200-8	14.98	50000
SA 200-9	16.82	56000
SA 200-10	18.66	62000





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