



AM SGB Sdn Bhd

# Oil Distribution Transformer



## Oil Distribution Transformer

Transformers are capital goods with a life expectancy that exceeds decades. During these decades, the transformers must remain economical. Buyers should, therefore, not only weigh the initial costs - but also consider maintenance and operational costs, including costs for no load and load losses.

In this critical decision, quality equals economy, even if the initial costs are sometimes higher.

Our transformers are the rational choice as they are economical, efficient, use high quality material and reliable manufacturing processes during production. The evidence of quality is certified by routine-, type- and special-tests.

An optimum core design is achieved by the use of high quality cold rolled, grain oriented

electrical sheet steel, step-lap cutting procedure and modern lamination methods without using internal bolts.

Reliable windings such as LV foil windings and HV layer windings guarantee short circuit rigidity and impulse voltage proof layout of the transformers.

Hermetically Sealed Transformers are having tanks with corrugated side walls assure the customers low maintenance costs. Alternatively, tank designs with conservators and detachable radiators are available. Vacuum drying of the active parts including oil filling in a vacuum chamber, guarantees the constant high quality of the transformer's oil and the transformer itself.

## Custom-made for your requirements

### Global Quality

#### Markets

SGB Group manufactures and tests transformers for the world markets. We meet the following standards:

- DIN/VDE.
- IEC.
- British Standard.
- ANSI/IEEE.

#### Products

- Distribution Transformers  
50 - 4000 kVA up to a High Voltage of 36 kV  
ONAN 50 or 60 Hz.

#### Quality Management

The SGB is certified according to:

- ISO 9001 : 2008 by TÜV.



• Common Cable Box



• Detachable Radiators

## Solid Workmanship

### Assembly of active parts

- Short-circuit-proof assembly with profile steel and support of coils.
- Secure Fixation of the electrical connections.

The active part is securely joined to the cover and supported against the bottom of the tank.

### Vacuum drying

- Heating & vacuum.
- Filling of dried and degassed mineral oil.



## High-Quality Materials

### Tank

- Corrugated tank up to 4 MVA.
- Modern folding facility processes the steel sheet into high-quality corrugated walls.
- After the tank has been robot-welded. It is checked for leakage with control liquid and ultraviolet light.



### Cover

The cover is made of doubling free high-quality steel. It is bolted to the tank, and can also be welded to the tank upon request. Beside bushings and lifting lugs the required control and monitoring devices are located on the cover.

### Corrosion protection

- Two component painting with min. layer thickness of 125  $\mu\text{m}$ .
- Coatings by flooding or spraying method.
- The tank can also be manufactured in hot-dip galvanised design upon request.



## Quiet Transformers Are Part Of Our Checklist

Reducing the noise emitted by the transformer to the environment is becoming more and more important.

In addition to the choice of flux density and core material, the step-lap technique of joining the legs and no-load losses in SGB transformers.

A-evaluated sound pressure level  
 **$L_{pA}$  in dB.**

A-evaluated sound power level  
 **$L_{WA}$  in dB.**



## Meeting All Requirements

### Accessories

#### Monitoring devices

- Dial-type thermometer.
- Temperature alarm device.
- Magnetic oil-level indicator.
- Pressure relief valve.
- Buchholz relay protection.
- Hermetic protection block.
- Dehydrating breather.

Current transformers / thermal images can also be mounted upon request.

#### Design variations

- Tap-changer.
- Outer and inner cone bushings.
- Transformer terminals and covers.
- Cable boxes.
- Terminal boxes.

#### Insulating liquids

- Mineral oil.
- Silicone fluid.
- FR3 fluid.



## Technical Efficiency

### Testing warranted

#### Routine tests (acc. to IEC60076)

- Test with applied voltage (winding test).
- Test with induced voltage (turn test).
- Measurement of winding resistance.
- Measurement of voltage ratio and determination of vector group.
- Measurement of short-circuit voltage and of short-circuit losses.
- Measurement of no-load current and of no-load losses.

#### Type and special tests (acc. to DIN VDE 0532)

- Temperature rise test.
- Impulse voltage test.
- Measurement of sound/noise level.
- Partial discharge measurement.

#### Short-circuit strength

This test is performed within the scope of type tests, however, can also be carried out in well-known and reputable test laboratories upon request.

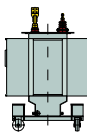


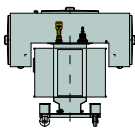
After longstanding testing practice as well as positive experience on the part of our clients, the use of a cylinder block stuck to LV-windings in combination with the HV-layer windings has proved to be problem-free.

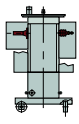
# Technical Data / Specifications

## OIL IMMERSED DISTRIBUTION TRANSFORMERS

### 11/0.433 kV Dyn11 50Hz (Um12/1.1kV)

Outline	Rated power kVA	Type	ID No.	P <sub>o</sub> W	P <sub>k</sub> W	U <sub>k</sub> %	Sound pressure dB(A)	Weights		Dimensions in mm		
								Total ca. Kg	Oil ca. Kg	L	W	H
 <b>Open Bushing</b>	50	DOTE 50/10	1070	140	880	4.00	43	570	140	900	680	1100
	100	DOTW 100/10	1011	300	1500	4.75	43	660	150	945	620	1185
	300	DOTW 315/10	2007	600	2800	4.75	46	1290	260	1190	760	1261
	500	DOTW 500/10	2008	1000	4100	4.75	47	1700	330	1500	770	1410
	750	DOTW 800/10	1007	1200	6000	4.75	48	2450	540	1690	925	1620
	1000	DOTW 1000/10	2010	1400	7000	4.75	49	3070	620	1730	910	1675

 <b>Cable Box</b>	1000	DOTE 1000/10	1723	1700	10500	6.00	49	2800	580	1930	2140	1930
	1250	DOTE 1250/10	1022	2000	13500	6.00	52	3450	700	2010	2140	2040
	1500	DOTE 1500/10	1018	2200	17000	6.00	52	3900	860	2010	2140	2120
	1600	DOTE 1600/10	1021	2200	17000	6.00	52	4200	870	2060	2190	2130
	2000	DOTW 2000/10	1061	2000	20000	6.00	53	5120	990	1980	2120	2370
	2500	DOTE 2500/10	1020	3200	26500	6.00	57	6300	1380	2320	2470	2590
	3000	DOTE 3000/10	1115	3200	26500	6.00	57	6500	1500	2400	2350	2600

 <b>Side Bushings</b>	300	DOTW 300/10	1132	360	3900	4.75	46	1350	260	1300	1600	1400
	500	DOTW 500/10	1133	510	5500	4.75	47	1900	350	1700	1650	1550
	800	DOTW 800/100	1134	780	7700	4.75	48	2550	550	1900	1750	1650
	1000	DOTW 1000/10	1135	925	9000	4.75	49	3150	650	2000	1900	1750
	1500	DOTE 1500/10	1136	1200	1400	5.5	52	4200	900	2200	1900	1900

Temperature rise 60° / 65°C. All given sound levels are max. values, i. e. sound pressure levels including 3dB(A) tol. Sound pressure level measuring distance 1 m, above 1 600 kVA 3 m.

P<sub>o</sub> : No-Load Loss    P<sub>k</sub> : Load Loss    U<sub>k</sub> : Impedance

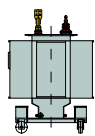

*The above ratings are a selection from our wide range of transformer designs. Differing ratings and cable box designs, as well as conservator type transformers are available upon request.*

**Note:** In the interest of technical progress the above specifications are subject to change without prior notice.

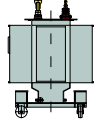
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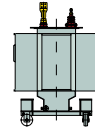
### 22/0.433 kV Dyn11 50Hz (Um24/1.1kV)

Outline	Rated power kVA	Type	ID No.	P <sub>o</sub> w	P <sub>k</sub> w	U <sub>k</sub> %	Sound pressure dB(A)	Weights		Dimensions in mm		
								Total	Oil	L	W	H
								ca. Kg	ca. Kg			
 <b>Open Bushing</b>	100	DOTW 100/20	2011	240	1600	5.0	43	640	160	1140	650	1205
	300	DOTW 315/20	2012	700	4400	5.0	46	1100	250	1410	780	1365
	500	DOTW 500/20	2013	900	7300	5.0	47	1530	340	1630	940	1521
	750	DOTW 800/20	2014	1200	9200	5.0	48	2020	450	1840	1090	1646
	1000	DOTW 1000/20	2015	1500	11700	5.0	49	2800	650	1890	1110	1710
 <b>Cable Box</b>	1500	DOT 1600/20	1081	2600	17000	6.0	52	4200	960	2110	2220	2140
	2000	DOT 2000/20	1082	2000	20000	6.0	56	5300	1000	2150	2220	2390
	2500	DOT 2500/20	100886	3200	26500	6.0	63	6550	1300	2500	2400	2700
	3000	DOT 3000/20	100887	3000	32000	6.0	65	6900	1400	2500	2600	2800

### 33/0.433 kV Dyn11 50Hz (Um36/1.1kV)

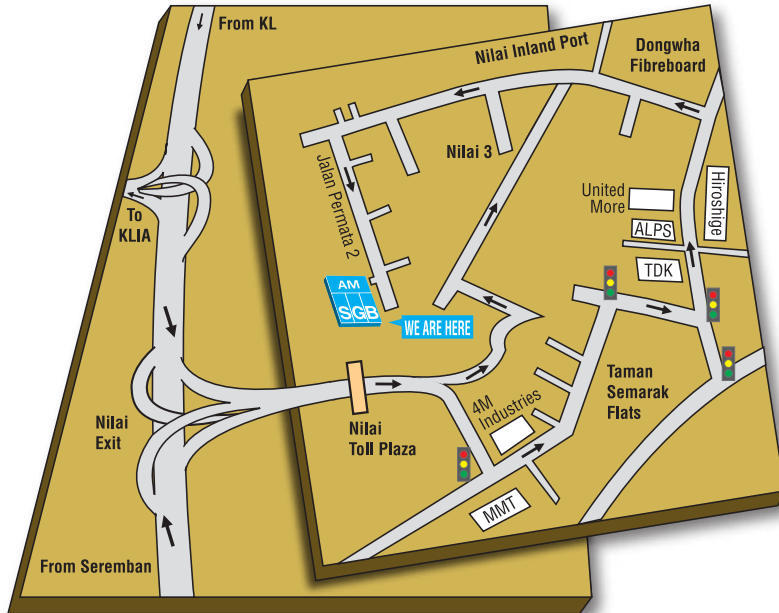
Outline	Rated power kVA	Type	ID No.	P <sub>o</sub> w	P <sub>k</sub> w	U <sub>k</sub> %	Sound pressure dB(A)	Weights		Dimensions in mm		
								Total	Oil	L	W	H
								ca. Kg	ca. Kg			
 <b>Open Bushing</b>	100	DOT 100/30	980651	260	2000	4.0	42	900	270	1110	740	1530
	160	DOT 160/30	980652	430	2400	4.0	44	1150	310	1160	750	1620
	250	DOT 250/30	980653	570	3450	4.0	46	1420	370	1200	790	1700
	400	DOT 400/30	980654	700	5500	6.0	48	1720	450	1320	910	1660
	630	DOT 630/30	980655	1000	7000	6.0	50	2160	530	1390	950	1750
	1000	DOT 1000/30	79664	1400	12000	6.0	52	3020	720	1870	1090	1960

### 34.5/0.480 kV Dyn11 60Hz (Um36/1.1kV)

Outline	Rated power kVA	Type	ID No.	P <sub>o</sub> w	P <sub>k</sub> w	U <sub>k</sub> %	Sound pressure dB(A)	Weights		Dimensions in mm		
								Total	Oil	L	W	H
								ca. Kg	ca. Kg			
 <b>Open Bushing</b>	1600	DOT 1600/30	101604	2600	16000	6.0	57	4100	1050	2000	1300	2300
	2000	DOT 2000/30	101603	3000	19000	6.0	60	4800	1150	2200	1400	2400
	2500	DOT 2500/30	101602	3500	25000	6.0	62	5800	1400	2300	1500	2400
	3000	DOT 3000/30	101601	3600	26500	6.5	63	6500	1500	2400	1500	2500

*The above ratings are a selection from our wide range of transformer designs. Differing ratings and cable box designs, as well as conservator type transformers are available upon request.*

**Note:** *In the interest of technical progress the above specifications are subject to change without prior notice.*



The AM SGB Sdn Bhd and SGB Cast Resin Sdn Bhd factory is strategically located in Nilai, the heart of Negeri Sembilan's fast booming industrial district. Its proximity to the North-South highway, the Nilai Inland Port and the Kuala Lumpur International Airport (KLIA) offers excellent and strong infrastructural support to platform the company's progress.



## AM SGB SDN. BHD.

(Company No: 311567-D)

PT 16688 & 16689, Jalan Permata 2, Arab-Malaysian Industrial Park, 71800 Nilai, Negeri Sembilan.

Tel : 06-799 4014 / 799 4016 / 799 5996 / 799 5998 Fax : 06-799 4946 / 799 4018

E-mail : mail@amsqb.com Web-Site : <http://www.amsqb.com>

### STARKSTROM-GERÄTEBAU GMBH

Ohmstraße 10 • D-93055 Regensburg

Telefon: +49 (0)9 41/78 41-0

Telefax: +49 (0)9 41/78 41-439

E-Mail: [sgb@sgb-trafo.de](mailto:sgb@sgb-trafo.de)

[www.sgb-trafo.de](http://www.sgb-trafo.de)

### SÄCHSISCH-BAYERISCHE STARKSTROM-GERÄTEBAU GMBH

Ohmstraße 1 • D-08496 Neumark

Telefon: +49 (0)3 76 00 / 83-0

Telefax: +49 (0)3 76 00 / 34 14

E-Mail: [sgb@sgb-neumark.de](mailto:sgb@sgb-neumark.de)

[www.sgb-trafo.de](http://www.sgb-trafo.de)

### SMIT TRANSFORMATOREN B.V.

Groenestraat 336 • NL – 6531 JC Nijmegen

Telefon: 0031 / 24 - 356 89 11

Telefax: 0031 / 24 - 356 87 64

E-Mail: [sales@smit-trafo.nl](mailto:sales@smit-trafo.nl)

[www.smittransformers.com](http://www.smittransformers.com)