

LIQUID-IMMERSED DISTRIBUTION TRANSFORMERS



www.sgb-smit.com

SGB-SMIT AT A GLANCE

HISTORY



1913

SITES



15

EMPLOYEES



3,800

TRANSFORMING TOGETHER THE FUTURE OF ENERGY

The SGB-SMIT Group manufactures reliable and efficient transformers in line with demand and adapted to our customers and their requirements for applications worldwide.

Sales and service centers on all continents ensure optimum processes.

Our goal is to help our customers accelerate the transition from conventional energy sources to renewable alternatives and the expansion of electrification.

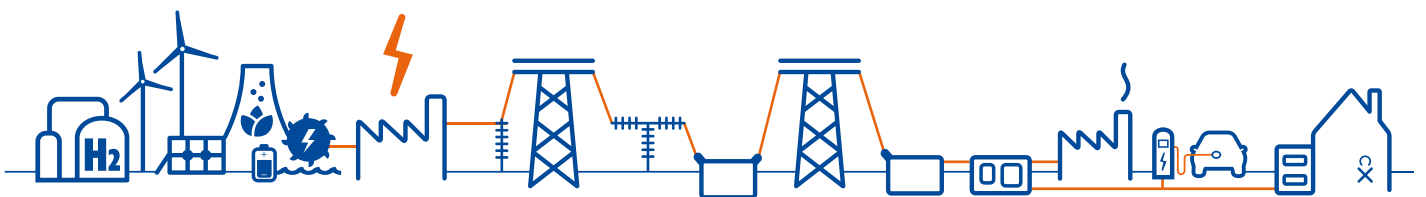
With our products, we ensure a safe and reliable supply of energy.

PRODUCTS



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

Transformers from 30 kVA up to incl. 1,200 MVA in the voltage range up to 765 kV.



TRANSFORMING TOGETHER THE FUTURE OF ENERGY



We manufacture liquid-immersed transformers for a multitude of applications and according to national and international standards.

TYPES

- Distribution transformers
- Single phase transformers
- Arc-suppression coils
- Grounding transformers
- Voltage regulating distribution transformers
- Multiple winding transformers
- Shunt reactors

TECHNICAL PARAMETERS

- Power range: 50 kVA – 25 MVA
- Insulation level up to U_m 72.5 kV
- Up to temperature class 180
- ECO Design 2021 Level II or higher
- Corrosivity category up to CX
- Natural and forced cooling
- Voltage regulation available

APPLICATIONS

- Distribution systems and electricity boards
- Renewable energy projects such as wind parks or solar farms SKID applications etc.
- Data centres
- Battery applications
- Industrial sites
- Railway applications



SAFE TRANSPORT

with certified freight forwarders and trucks with special bodies and cargo securing equipment



THE TOP 4 PROCESSES



Core, windings, assembly, and tanks:

The four components and production processes that define the quality of our liquid-immersed distribution transformers.

These are our “TOP 4”.



1

THE CORE

QUALITY IS NO COINCIDENCE

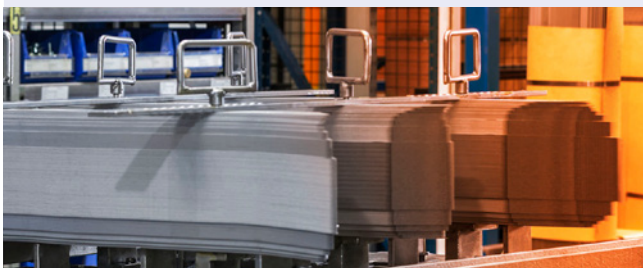
The heart of our liquid-immersed distribution transformers:

Thanks to state-of-the-art production processes and the highest precision, it beats with exceptional reliability and efficiency.

This is what distinguishes cores manufactured in-house at SBG:

- Cold-rolled grain-oriented metal sheets
- Step-lap design
- Max. filling factor

These measures reduce no-load losses and no-load currents as well as noise emissions.



At SBG, the actual parameters of the texture tapes used are measured and recorded prior to core cutting.



2

THE WINDING

PRECISE AND RESISTANT

Maximum resistance to short-circuit load and surge peaks.

The low-voltage winding:

- semi-automated winding machines
- current displacement in axial direction adjusts automatically
- reduced thrust forces
- spark-free and splatter-free cold-pressure welding of lead-outs
- high-strength coils thanks to thermal bonding of the prepreg to the conductor material

The high-voltage winding:

- fully or semi-automated winding machines
- enamelled or paper-insulated winding wire
- constant winding tension
- layer insulation of high-quality cable paper



LV insulation meets the highest safety standards thanks to:

- two-layer prepreg as LV insulation material
- constantly tested pressure-welded joints



3



ASSEMBLY AND DRYING

RELIABLE AND SOLID

The robust and short-circuit-proof design of all modules indicates the craftsmanship of the SBG transformer.

The active part assembly:

All modules are assembled and mounted in a short-circuit-proof manner using pressed components. This results in additional reserves and increased reliability.

The vacuum drying process:

Drying and oil filling under vacuum as a basis for:

- maximum impregnation of insulating materials
- strict compliance with PD specifications as a prerequisite for an extremely long service life



At SBG, all active parts are subjected to an electrical pre-test prior to installation in the tank.

4



TANKS & CORROSION PROTECTION

DURABLE AND ROBUST

We apply the most exacting criteria regarding permanent leak-tightness and corrosion resistance.

The tank and cover:

- corrugated tank manufactured in-house
- steel sheet of deep-drawing quality is processed in state-of-the-art corrugation plant
- after robotic welding, the tank is tested for leak tightness

The corrosion protection:

- environmentally friendly, hydro-based coating system for various corrosion protection requirements
- paint coating applied by immersion (standard colour RAL 7033)
- the tank can be hot-dip galvanised whenever high corrosion protection is required



At SBG, all tanks manufactured in-house are subjected to a fourfold leakage test in accordance with factory-specific standards. This ensures oil-tightness over the transformer's entire service life.

TESTING



“TRANSFORMERS SHOULD BE SEEN AND NOT HEARD”

Reducing transformers' noise emissions is becoming increasingly important. This is why, in addition to standard design (DIN EN 50588), SBG transformers are also available with reduced losses and lower noise levels.

Alongside the selection of the appropriate induction and core material, the method of dovetailing legs and yokes in step-lap design has a positive impact on the transformers' noise emissions and losses.



Routine tests acc. to DIN VDE 0532

- Applied voltage test (winding test)
- Induced voltage test (interturn test)
- Winding resistance measurement
- Voltage ratio measurement and determination of vector group
- Impedance voltage and short circuit loss measurement
- No-load current and no-load loss measurement

Type and special tests acc. to DIN VDE 0532

- Heat run test
- Sudden short-circuit test
- Noise level measurement
- Partial discharge measurement
- Pressure test

Short-circuit current capability

This is verified through type tests carried out by recognised test laboratories.



ACCESSORIES

Enhanced protection, easier monitoring, and extended controls: Our transformers can be equipped with accessories and special solutions for even better integration in your application conditions.



Protection and monitoring devices

- Temperature
- Oil level
- Pressure
- Gas formation



Protection against contact on HV- and LV-side

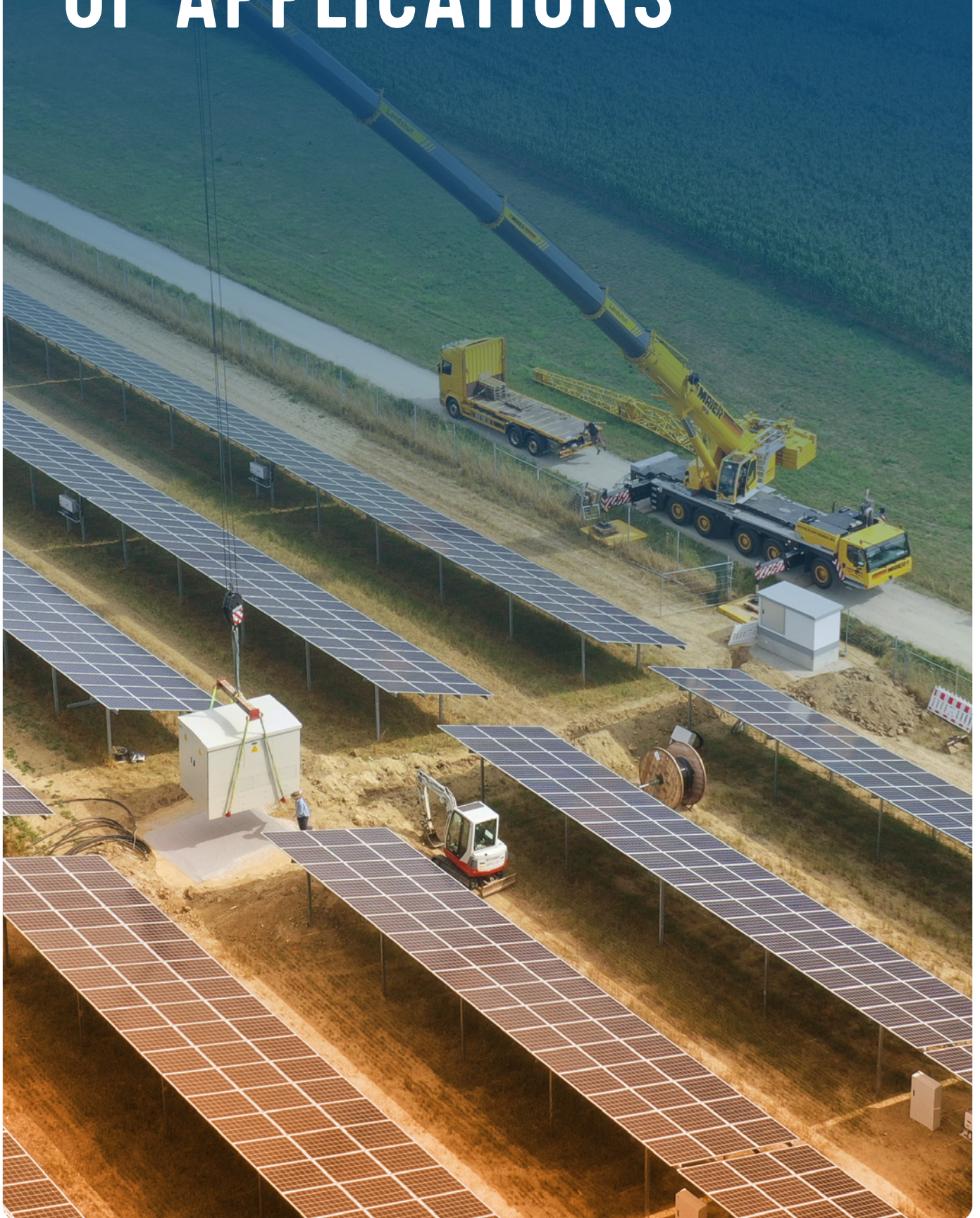
- HV:
 - inner cone plug-in bushings
 - outer cone plug-in bushings
- LV:
 - connection terminals with covers
 - cable boxes



Special solutions for applications with special requirements

- Flat-bar connection system
- Electromagnetic compatibility (EMC)
- Converter operation
- Vibration-proof designs
- Solutions for special climatic conditions and high altitudes

WIDE RANGE OF APPLICATIONS





RELIABLE QUALITY OCCUPATIONAL SAFETY AND CERTIFICATION

Awards and certificates reflect the exacting standards we set for ourselves and our commitment to responsible practice.

Quality and performance



Environment



Occupational health and safety



Energy



Sustainability



Product certification



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