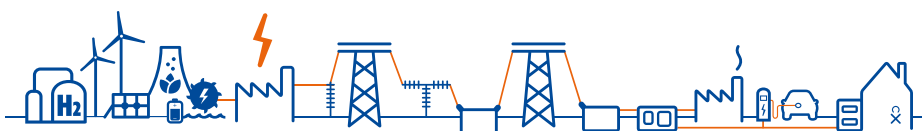


# LARGE POWER TRANSFORMERS



# SGB-SMIT AT A GLANCE

# 1913



## HISTORY

... of steadily growing expertise

# 3,100



## EMPLOYEES

... are the key to our success

# 14



## SITES

We are one of the world's leading manufacturers of distribution and power transformers



## 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.

We secure with our products a safe and constant supply of energy.



## QUALITY MANAGEMENT

The SGB-SMIT Group is certified in accordance with:

- DIN ISO 9001
- DIN ISO 14001
- DIN ISO 45001



## 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.



## TECHNOLOGIES

Technologies for conventional and renewable energy.

# ROYAL SMIT – PART OF THE SGB-SMIT GROUP



A world in transition: power, power generation and power distribution are probably the most important challenges for our future. The SGB-SMIT Group provides you with key technologies and tools worldwide in order to secure markets and to shape the future.

## SGB-SMIT GROUP

Royal SMIT Transformers B. V. is part of the SGB-SMIT Group together with further locations in Europe, USA and Asia. SGB-SMIT stands for professionalism, experience, technological knowhow, reliability and economic efficiency – this is the basis for the development and production of distribution and power transformers from 30 kVA up to incl. 1,200 MVA within the voltage range of up to 765 kV.

The product range includes oil-filled transformers, transverse controls, cast resin insulated transformers, compact stations and compensating and series coils. Mutual exchange of knowledge and experience is encouraged within the group.

### Royal SMIT Transformers B.V. is part of the SGB-SMIT Group

Royal SMIT's extensive experience and highly motivated team of employees make it a stable organisation with strong ambitions. Royal SMIT is more than 100 years old, but remains a business with a youthful spirit and a constant drive towards innovation. As a result, proven technology goes hand in hand with innovation and lean manufacturing at Royal SMIT, resulting in the best product for our customers.

## “BEST OF BOTH WORLDS”

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 acceptance. Locally speaking, you benefit from customer focus, lean structures and short distances. This not only applies to planning, but also to manufacture and service alike. Due to close cooperation with our customers, this results in focused development, ongoing structural improvements and optimization of the appropriate service.

Especially when it comes to innovative products such as connecting up offshore wind power plants, the interlinking of international networks or products with special licenses, we are driven by our customers' requirements.

# ROYAL SMIT TRANSFORMERS B.V.



## CUSTOMERS

Royal SMIT is an international business which manufactures power transformers for major energy companies and industries in Europe, North America, Africa and the Middle East. Royal SMIT's customers also include transmission and distribution companies. Customers choose high quality, reliable transformers from Royal SMIT because we combine in-house expertise, designs and products with flexibility and a service-oriented approach. We are open to co-engineering if our customer prefers to go down that path.

During the often lengthy relationship with both our customers and carefully selected suppliers we constantly achieve the best result.



## RESEARCH & DEVELOPMENT

Royal SMIT works to international standards, whereby our strength lies in the design of transformers based on the customer's specific requirements and wishes. Royal SMIT thereby uses fully integrated design software which has been developed in-house. This software is linked to a 3D-CAD package which enables our designers to produce effective and efficient customer-specific models.

In order to be able to meet the growing demand from the energy sector, Royal SMIT's engineers devote a considerable amount of time and resources to research and development. Designs are optimised both through constant attention to training and education and by emphasising the importance of inventiveness and creativity in the field of engineering criteria and production methods. Important tools in this research are 3D modelling and the use of the Finite Element Method.

Royal SMIT also works closely with KEMA Arnhem for tests and with the Universities of Technology in Eindhoven and Delft on dielectric research, amongst other things. Royal SMIT's engineers take part in international working groups in their professional field such as Cigré and IEEE.



## PRODUCT

Royal SMIT develops, manufactures and installs transformers, phase shifters and reactors between 100 and 1,200 MVA and up to 765 kV.

One unique aspect of the Royal SMIT design is the way in which the short-circuit forces are catered for by means of an independent coil clamping structure. This structure gives each coil a pre-defined compression strength. There is also no link between the clamping structure for the coils and that of the core. This ensures the ability to withstand short circuits and results in minimal transfer of noise from core to coils.

## MANUFACTURING

More than 100 years of expertise and experience combined with the latest equipment provide an important basis for Royal SMIT's further optimisation of its production processes. This leads to continuous improvements in the area of quality and reliability of the end-product. We link the fully integrated design programs to a balanced production and testing environment which includes horizontal and vertical coil winders, advanced core stacking jigs, a vapour phase drying process and air cushion transport.



# LARGE POWER TRANSFORMERS



## TESTING

Royal SMIT tests its products in a laboratory setting with equipment which can be considered "state of the art". The complete units are subjected to electrical and functional tests in one of the two high voltage laboratories in accordance with the requirements of recognised standards such as ANSI and IEC. It is not just routine tests that take place in the high voltage test bay, but also specific tests such as temperature rise tests, impulse voltage tests and noise measurements.

## TRANSPORT

Royal SMIT uses air cushion transport for the internal movement of both individual components and complete units. This unusual form of transport delivers both an enormous time saving and a flexible manufacturing process.

Royal SMIT has its own loading quay on the Maas-Waal channel, a stone's throw from the factory. Roll-on roll-off ships give us direct access to the world ports at Rotterdam and Antwerp. The company has relationships with specialist international shipping companies for the transport to customers.





## INSTALLATION

During installation the transformer is assembled and given a full oil treatment. Limited tests are carried out. Customers often carry out these activities with their own employees, but always under the supervision of an expert from Royal SMIT. We also have contracts with a number of specialist firms – particularly in the USA, France and Great Britain – that can carry out the full build and testing on site.

## SERVICE

We have our own service department in the form of “SMIT Transformer Service”, which provides repairs, preventative maintenance and service on Royal SMIT’s own transformers and those of other manufacturers. The professionals from “Smit Transformer Service” have all the requisite expertise, make accurate diagnoses and have excellent problem-solving skills. The engineers provide their services on a 24/7 basis.



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