GANZ

Ganz Transformers and Electric Rotating Machines Ltd.

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GANZ TRANSFORMERS SINCE 1878

GANZ ROTATING MACHINES SINCE 1878

GANZ SERVICE SINCE 1878

POWER TRANSFORMERS

Introduction

The power transformer business unit has a history of 140 years which starts with the well-know historical first closed magnetic circuit in 1885. The first oil cooled transformer production started in 1900.

The business unit is specilized in designing, manufacturing and testing transformers for several applications in a wide range of powers from 20 to 600 MVA on 52-800 kV voltage levels (1000 MVA for autotransformers). The power transformer business unit has experienced electrical, mechanical, test engineers and well-qualified technicians at the manufacturing site in Tápiószele. Our customers can experience high and focused attention from the tender phase to the commissioning and site tests.

The manufacturing area extends over 11 000 m^2 with 240 tons of maximum crane capacity. The factory annual capacity is 12 000 MVA. On the facility site 200 people prepare the transformers according to ISO 9001, ISO 14001 and ISO 45001.

Every transformer is individually designed to its specific requirements and applications.
The following specially-developed methods are used to further endure the reliability of the product:

- optimization of design in relation to labour and material costs, loss evaluation and sound level,
- distribution of voltage stresses during lightning impulse and switching surge conditions,
- behaviour during short-circuit conditions,
- analysis of those areas where high electrical stresses can occur,
- calculations of stray losses and thermal effects.

Renewables

The international energy landscape is evolving from one dominated by increasingly scarce fossil fuels with their devastating effects on Planet Earth to one in which organizations are constantly hunting for alternative forms of energy. Ganz is one of those who want to contribute to the greener future.

Ganz provides power transformers with high quality, helping its customers use electrical power effectively and increase industrial productivity with sustainability.

Alternative energy sources such as wind, the sun, biomass and others are increasingly being afforded the scrutiny they deserve. Ganz is part of this process, developing smart solutions and offering creative leadership in the field.

Year	Milestone
1950	First transformer on 245 kV
1967	First transformer on 420 kV
1978	First transformer on 750 kV
2002	First transformer in the world for 123 kV with ester liquid
2008	Beginning of manufacturing mobile transformers
2009-2011	765 kV transformer export to Indian market
2019	Refurbishment of our 40 years old 750 kV transformers
2021	250 MVA, 400 kV autotransformers in MAVIR Substations

PRODUCTION RANGE

POWER	20 - 600 MVA
VOLTAGE	52 - 800 kV
FREQUENCY	16,7 - 60 Hz
ANNUAL CAPACITY	12 000 MVA

Capabilities

Tailor-made designs for renewables:
Ganz transformers have good experience in tailor-made designs with various fields of use (wind and solar farms, hydro and biomass plants), where the projects have challenging requirements.

Power transformers with low noise level:
Ganz can fulfil the most extreme noise requirements of German and Scandinavian markets as well.

Power transformers with low losses:
Ganz transformers can easily fulfil the Ecodesign requirements (Tier2 from 2021)

Biofluid immersed power transformers:
Biodegradable oils are used to provide safe solutions for special requirements of fire protection, environmental safety, space limitations and cost savings.

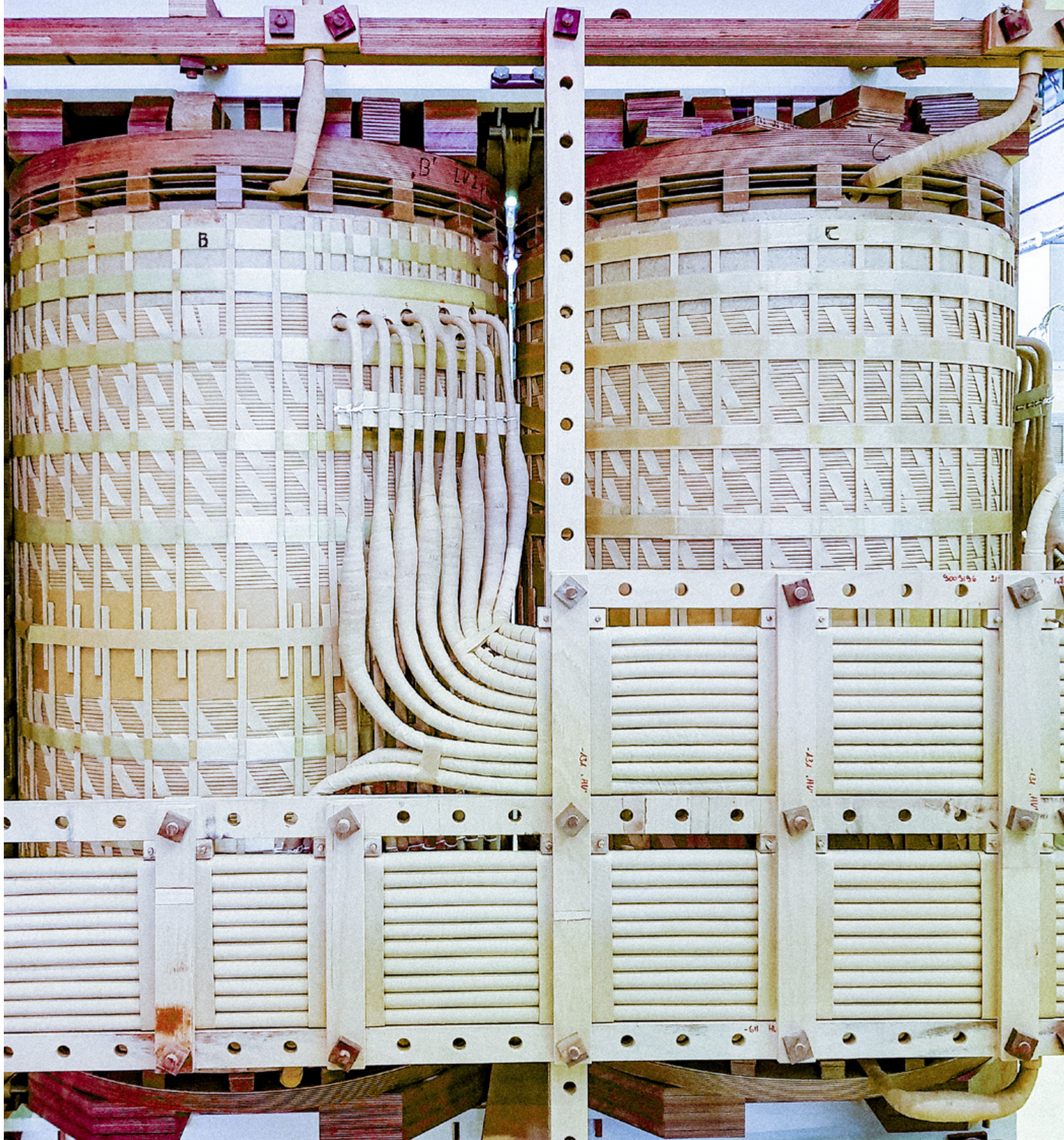
Ganz was the pioneer for manufacturing synthetic ester filled transformer to the Scandinavian market, and Ganz has the design rules for the natural esters as well.

Hybrid insulation system:
Using higher thermal class insulation results in improvement in performance and total reliability. It allows more in-built power in same size and weight, or more compact units for the same power level.

Short-circuit withstand ability:
Ganz has proven manufacturing and design technology for short-circuit withstand ability, and excellent record for short-circuit tests.

Monitoring systems:
Ganz provides customized management tools that monitor the operating conditions of transformers in order to maximize the performance and provide real-time information on desired system status points.

In addition, Ganz also offers a full range of after-sales services (installation, maintenance, refurbishment and repairs of products worldwide).



Special applications

Trackside power transformers
Trackside transformers are used to provide single-phase supplies for train overhead systems.

Transformer for mobile substation
Typical applications:
Emergency substation in case of defects, repairs and maintenance, reduction of network redundancy
Intermediate solution in a rapidly or unpredictably growing infrastructure, wind parks, business parks, etc.
Standby station for projects in oil & gas exploration, mining, etc.

Total Cost of Ownership

Ganz advocates high efficiencies by using the Total Cost of Ownership (TCO) method. This combines minimum investments and maximum energy efficiency for the least ownership cost.
TCO main factors:

- Purchase price,
- Cost of no load and load losses,
- Cost of commissioning,
- Lifetime and reliability,
- Maintenance cost

Transformers

Transformer Test Bay

The test laboratory is located in the building of the transformer factory in a separate hall and extends over 1000 m^2, enabling three transformers to be tested at the same time.

Two independent three-phase test systems, high voltage AC test equipment and impulse voltage generators for LI and SI tests are available.

All routine, type and special tests according to IEC and IEEE standards can be performed on the full product range of Ganz transformer factory (up to 600 MVA and 800 kV).