Additional information

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Dry-type transformers for data centers

Safety, reliability and efficiency for data centers of today and the future
ABB, your data center partner

There will be 8 billion people by 2020

5-7% increase in data center infrastructure for each 25% leap in the number of connected devices

40-60 GW data consumption energy usage by 2020.

400% growth of data center traffic expected by 2020

Established technology leader

Since the inception of data centers ABB has been providing solutions to this dynamic and rapidly expanding sector.

Building on its background in supplying mission-critical power and automation technologies, ABB provides a wealth of expertise, engineering, products and support to help today’s data centers operate more safely, reliably and efficiently.

Nowadays we take for granted that data storage space is available, efficient and economical, therefore we keep storing more and more data. At ABB, we can help you meet the data demands of today and tomorrow. We believe our industrial heritage, broad choice of electrification & automation solutions and commitment to sustainability will help you grow your business.
Data centers and critical technologies

Increasing digitalization is rendering the uninterrupted flow of data absolutely essential for day-to-day operations.

Whatever challenges you may be facing, whether it’s space saving, modularity & flexibility, energy efficiency, continuous operation or safety & security, we have the solutions you need to overcome them.

The value of ABB’s contribution to data centers is evident not only in the quality of individual products but also in the company’s ability to develop and implement entire integrated systems, covering the power delivery chain, automated monitoring and control as well as game-changing technologies for cloud, colocation, telecommunications and financial services customers.

We know you need secure power to keep your data driven business running 24 hours a day. The power needs to be reliable, efficient and safe. ABB provides solutions to deliver and manage power at scale for today and tomorrow.

For more information visit: www.abb.com/datacenters
Over a century of experience in transformer technology

ABB transformers are found wherever electricity is generated, transported and consumed – in power plants and substations, skyscrapers and shopping malls, ships and oil platforms, locomotives and railway lines, wind parks and solar power fields... and datacenters.

ABB is the world’s largest transformer manufacturer and service provider with more than 70 production units around the world. ABB offers unbeatable experience in every aspect of power and distribution transformer technology covering both liquid-filled and dry-type transformers with power ratings that reach 1500 MVA and voltages of up to 1200 kV.

Dry-type transformers as the preferred technology for datacenters

When selecting transformers for a new data center, designers have two main options: dry-type and oil-filled transformers. Dry-type transformers not only increase the reliability and safety of electrical systems; they can also yield significant savings during installation and operation.

If we have a closer look at the particularities of dry transformers, the most significant aspect is the fact that they are air or resin insulated and therefore do not foresee the presence of flammable liquids. This leads to considering the dry-type solution intrinsically safer than an oil-cooled one.

Furthermore, the lack of need for oil-containment works, and the fact that dry-type transformers can be located indoors and close to the load, address also positively the reduction of installation costs.

By installing the transformers indoors, it is possible to tackle also security aspects, since transformers are not exposed to vandalism or attacks, and it is also possible to maintain secrecy of the amount of installed power.

Dry-type transformers are delivered as self-contained units and do not require fluid level checks, moisture presence verification or fluid topping prior to their installation. The commissioning procedures are brought to basics, allowing a swift completion of this operation.

Important benefit from adopting dry-type technology is the fact that transformers require little or no maintenance and that in case of need, they can be repaired on the spot with ease by service experts.

- NO FIRE RISK
- NO OIL-CONTAINMENT WORKS
- HIGHER SECURITY
- SIMPLE INSTALLATION AND MAINTENANCE
- REDUCED MAINTENANCE
What we offer
ABB’s range of dry type transformers

ABB’s complete range of dry-type transformers covers everything from 145 kV substations, to essential MV distribution transformers, to low voltage (< 1 kV) switchgear components. ABB’s portfolio, which also includes reactors, has made the company a one-stop supplier of transformers and inductors for data centers.

ABB also designs and manufactures low voltage dry-type transformers and reactors up to 10 MVA with voltages up to 1.2 kV to provide a complete portfolio of solutions for its partners worldwide.

Our offering for Data Centers

> 30,000 units/yr manufactured in 14 locations globally

< 1%
Field failure rate during the entire lifetime of the product

(1) Diesel rotary uninterruptable power supply
(2) Power distribution unit
Benefits of adopting TVRT™
The TVRT™ provides a wide range of effective benefits to the system it is installed within. It is a crucial product for critical power systems installed at data centers, hospitals, oil & gas plants etc.

TVRT™

- Does not require costly system studies
- No increase in transformer footprint
- Eliminates risk of transformer failure during switching
- Has lower cost and is more effective than other current solutions
- Is a totally dry solution, therefore reduces the total installation costs

To meet its customers need for reliable power, ABB has developed a transformer that can operate safely with vacuum circuit breakers.

The switching of vacuum and SF6 circuit breakers can produce fast transient over-voltages inside transformer windings that could lead to failures. These failures result in system downtime and unrepairable equipment; both proving costly to network managers.

ABB’s Transient Voltage Resistant™ Transformer (TVRT™) provides complete peace of mind during network switching operations. By using strategically placed winding varistors, the TVRT™ eliminates costly outages caused by switching transient failures and works in any electrical network without the need for additional system analysis of design. All the components of the TVRT are oil-free which greatly reduces installation costs and removes the risk of fires or spills making it the safest solution.
Customizable solutions

With data centers becoming ever larger, more complex and more efficient, their operation requires products with extreme reliability, that need to be customized to meet specific customer demands of power delivery, footprint and cooling.

ABB offers extensive experience across every distribution segment and a range of industry-leading tools to design and manufacture its dry-type transformers. With this wealth of knowledge and capability, ABB can provide customers with an exact fit for their specific requirements.

In addition, with three different winding technologies – cast resin (sealed windings with superior insulation characteristics), Vacuum pressure impregnation (excellent price/performance ratio) and Resibloc™ (extreme sturdiness in hazardous locations) – ABB is able to offer the best possible solution to suit every technical and commercial requirement globally.

Making the design more accurate, faster and complete with BIM

BIM - Building Information Modeling is a new design approach that goes beyond 3D modeling. Dedicated software enables the complete rendering of a project with even minor details. BIM uses the individual files of every single object present in a building, down to the smallest component such as a 10 Amp switch or a mechanical valve. The software allows complete integration of all components in the systems design, making the design more accurate, faster and complete – and reducing the chances of bad coordination. All BIM files are available publicly at dedicated online libraries.

Global footprint

Your partner across the world

We have a worldwide network of production facilities, serving you locally with a full range of products and solutions. All of our locations are using a common base-design and construction platforms which enable us to offer products with the same high standard of quality regardless of where the transformers are manufactured.

ABB’s global footprint allows us to provide widespread assistance to all of our customers. Whether it is spare parts, maintenance planning or for any repair, we will make sure you get complete support wherever you are.

A single point of contact is available through our Center of Excellence for Data Centers.

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