



Transformer Service

Service you can count on
Intelligent solutions for transformers

Transformer Retrofit and Engineering Support (TRES) is a comprehensive service package with quality solutions, tailor-made to fit individual needs.



Use the benefits Complete portfolio with the TRES concept

Top performance and unquestionable reliability, thanks to intelligent thinking from our team in Halle. The ABB Service Center provides innovative solutions to optimize your transformer's life expectancy. The Center's engineers and scientists are constantly developing our service products and processes to meet our clients' needs, putting the latest research results to practical use. Our clients in the power utility and manufacturing industries know that planning ahead makes business sense. Rather than reacting to problems when it is too late, they choose ABB for the latest in condition-based maintenance techniques. And the benefits do not stop there. Businesses know that whatever their query, whatever the type of transformer and whatever the manufacturer, expert help is always at hand from the Service Center. The team from Halle covers all areas of transformer service, from diagnosis to maintenance and repair. Our service portfolio encompasses complex, technically demanding modifications and fast, reliable delivery of spare parts for all types of transformer. Work ranging from preventative diagnosis to retrofitting and upgrades can be carried out at our state-of-the-art premises or at the transformer site.

The basis for all this is the TRES concept. TRES stands for "Transformer Retrofit and Engineering Support". TRES covers five product lines, delivering energy providers and industrial enterprises efficient solutions from ABB, to optimize a transformer's performance at every stage of its life cycle.

Excellent service that adds up for you:
With TRES, transformer performance becomes something you can predict with confidence. The system enables higher operating efficiency and availability.

Make the most of our diagnostic services – detailed assessment and documentation of the overall condition of an individual transformer or an entire transformer fleet; estimation of life expectancy and recommendations to prolong life



Key competence engineering solutions

The right advice based on detailed diagnosis

Diagnosis is a vital step to prescribing the right treatment. Engineering Solutions, the first component in the TRES service portfolio, provides transformer operators with a solid basis for decisions right from the outset. As such, it is an indispensable tool for planning further work. The ABB engineers carry out scientifically-founded detective work on the transformer, so resources and capacities can be allocated effectively and reliably from early in the examination process. The client benefits from ABB's complete approach, covering all the necessary tests and measurement procedure. Some examples include:

- Oil diagnosis in our own laboratory
- all the usual dielectric and electrical measurements in accordance with DIN/IEC standards
- analysis of the results by scientists and technology consulting with engineers.

The analysis of the results draws on the vast range of expertise available at the ABB site in Halle. The know-how ingrained in the facility combines with a track record of excellence in service gained on every continent, often under extreme conditions. All of this knowledge, e.g. oil test values, is accumulated in worldwide databases, ready for future use and provides a springboard for our intensive research.

Once the condition of the transformer has been assessed, the results can be used to derive cost-effective measures to optimize the transformer's remaining life. This approach can be applied effectively to transformers that are already showing signs of damage. If a transformer is gassing, for example, the scientific experts from ABB in Halle can determine whether it is possible and economically viable to continue operation until a replacement is delivered.

Thanks to preventive diagnoses, businesses can plan investments in their electrical infrastructure with much more certainty. The detailed measurements taken provide a dependable stock of information, enabling our expert consultants to come up with appropriate and comprehensive technical advice.

A decisive advantage of engineering solutions is that they can be applied to individual transformers and whole fleets. Assessing the condition of a fleet of transformers makes it possible to plan investment and maintenance for each unit – depending on a transformer's condition and functional importance in the network.

Many of today's standard industry practices were invented by ABB and the group continues to be a technology leader in many aspects of transformer service. The spectrum of innovative solutions we have developed ranges from the latest measurement techniques to detailed condition assessment reports. Close co-operation with leading universities and research establishments has underpinned these inventive developments and will continue to fuel innovation in the future. An example of this is the mobile high-voltage test System on the basis of a frequency converter. Its uses include on-site testing after repair work, testing following transport or to evaluate the condition of a transformer more precisely.

Mobile high-voltage test system

The ABB site in Halle was the first to develop a mobile high-voltage test system, on the basis of a frequency converter, and put it into use. It can be used for routine, type and special tests in accordance with international standards. Such tests were previously only possible in stationary test facilities.

Mobile impulse generator

A world-wide novelty in respect of high-voltage testing of power transformers on site is a high-performance mobile impulse generator. All components have been installed in a modified 40ft standard container.

Mobile solutions, the benefits of excellent service – save time and money compared to traditional factory maintenance and repairs; thanks to know-how that extends beyond a single manufacturer, old transformers can be retrofitted, broadening your strategic options



Always on the scene

Worldwide maintenance and repairs

Rather than bringing a transformer into the workshop, ABB brings the workshop to the transformer. ABB in Halle is constantly developing forward-looking technologies and methods to work on the move. This means that TRES is also the word for innovative solutions for on-site service and repairs.

Field service and maintenance

Always ready to get to you quickly – whatever the surroundings, the team of engineers from Halle is your first port of call for on-site service. We cover work on all transformer components: Upgrading cooling systems, changing bushings and maintaining tap changers, overhauling protective systems, oil treatment and drying, general repair and sealing work and much more.

TrafoSiteRepair™

Moving a transformer can often be a logistical nightmare. That is why ABB has developed a high performance technical solution within its TRES portfolio: TrafoSiteRepair™. This procedure makes it possible to carry out a wide range of repair tasks on the active part of the transformer, without taking it off site.

Transformer operators benefit from everything you would expect from a state-of-the art transformer factory, delivered to their door by ABB. This means a dirt-free working environment, plant equipment for handling heavy loads, an experienced team, specialist tools and the technology to test and process oil. The on-site service avoids the risk of damage in transit and enables work to be carried out on transformers located beyond the reach of transport infrastructure. All work – e.g. replacing windings, replacing or repairing the core, is carried out to the highest quality standards. Plus ABB assures that materials used off-site are tested to meet the most demanding requirements. The team from Halle assures continuous monitoring of critical processes and provides experts to carry out specialized repairs. All repairs undergo high-voltage testing to certify their quality.

With more than 200 repairs successfully completed to date, ABB is the world market leader in this field. More good news is that TrafoSiteRepair™ is not limited to a single transformer type or manufacturer. Repairs and maintenance work can be carried out on almost any transformer.

Factory repairs and spare parts –
the benefits of excellent service –
increased flexibility, even for extensive
and timeconsuming servicing; save costs
by reducing your stock of spares



State of the art production facility

The Halle site is equipped for demanding factory repairs and reliable spare parts service

One of the world's most flexible transformer factories provides the setting for extensive repair work. Halle offers more than 70,000 square metres filled with technological equipment and know-how.

With a vacuum drying oven capacious enough for even the largest active parts and infrastructure capable of shifting several hundred tons, size is definitely not an issue. The range of tasks that can be performed at the factory site assures complete service coverage and flexibility in all areas. The testing facility carries out all of the usual tests in accordance with international standards.

The facility offers all services independent of transformer manufacturer:

- Inspection and testing
 - Remanufacturing, e.g.
 - Reengineering of third-party products
 - Replacement or part-replacement of the windings
 - Changing power and voltage, e.g. by rewinding and adapting the cooling system
 - Installation of new tap changers for all manufacturers
 - Transformer overhaul and restoration
 - Work on the tank and accessories
- and much more...

Research and development are a top priority. Retrofitting is one of the areas where new solutions, such as remanufacturing, are continually being developed. Remanufacturing involves reusing the core, so that units can be equipped to work at different voltages, saving time and money.

The parts you need, always in stock

The TRES portfolio is rounded off by a comprehensive archive containing all types of spare parts. Quick sourcing and delivery of spares is an integral part of our service. Besides assuring availability of ABB products, our service specialists are sure to find the right parts for other manufacturers' transformers.

Welcome to ABB in Halle

Where technologies of the future are part of our tradition

Transformer service with tradition and future: intelligent solutions from ABB in Halle

With 90 years of experience, Halle is one of the oldest transformer factories in Germany. By combining such practical experience with fundamental scientific research, the current ABB site has become a world leader in intelligent transformer service. ABB maintains close contacts with top universities and research establishments, ensuring that the latest findings from research are quickly transferred to realworld applications. At the same time, ABB offers doctoral scholarships, allowing up-and-coming engineers to inspire their research with practical work. In this way, scientists and engineers get the chance to display their pioneering spirit. Thanks to the opportunity to conduct research on real transformers, they are constantly able to add to existing methods of diagnosis. Halle is a key player in the ABB team, an integral part of one of the world's most successful power and automation technology groups and world leader in transformer production.

Halle plays the part of a "Focused Factory", a centre of excellence for transformer service. The factory overhauls and maintains units with voltages of up to 800 kV. 100 fully-tested transformers leave the Halle site every year, ready for duty in one of the 50 countries throughout the world that Halle has already done work for. The customers include industrial concerns as well as utilities.

Certified quality from qualified staff

Halle – the mark of quality service. Fully certified systems for health and safety, quality control and environmental management are the proof of our commitment to excellence. A further sign of the Center's reliability is our certification by the German Nuclear Safety Standards Commission (KTA), allowing us to work in nuclear power plants. Yet another is the confirmation by leading energy suppliers of ABB Halle's suitability for work on the planning, lay-out design, repair and service of power transformers and shunt reactors.

The final cast-iron guarantee of certified performance is our staff. More than 200 qualified personnel, i.e. technicians and engineers, are ready to share their know-how with our customers and suggest efficient ways of solving problems. Our team members are well-acquainted with the most difficult of conditions thanks to their experience carrying out TrafoSiteRepair™ abroad. And it is our clients who benefit. No difficult experience or discovery made in the course of our practical work is wasted. All of our employees contribute to informing our research, their input helping to push the boundaries in the development of new solutions.



Contact us

ABB AG

Transformers

Eurpachaussee

06112 Halle, Germany

Phone: +49 345 5686 0

Fax: +49 345 5686 120

ABB AG

Transformers

Hertefelder Dorfstrasse 1

14641 Nauen, Germany

Phone: +49 03321 45 3361

Fax: +49 3321 45 5215

ABB AG

Transformers

Oskar-von-Miller-Strasse 2

86356 Neusäß, Germany

Phone: +49 821 48 00150

Fax: +49 821 48 00140

Email: trafo-service.detfo@de.abb.com

www.abb.com/transformers

Note:

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB Ltd. does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents - in whole or in parts - is forbidden without prior written consent of ABB Ltd.

Copyright© 2011 ABB

All rights reserved