TRANSFORMER SERVICES
OUR KNOWLEDGE. YOUR EXPERTS.
WWW.REINHAUSEN.COM
Maximum reliability and availability of your power transformers – that is what we work towards. From diagnostics and consulting to recommendations for action as well as technical implementation, we provide a one-stop source for everything you need. Our experts also provide support in the areas of service, diagnostics, modernization, and consulting within the scope of turnkey projects. And we also offer a professional solution for fleet management.

Whether you operate a single transformer or a whole fleet of them, you always need to be confident you are taking the right actions at the right time for reliable operation. This is where our expertise and our experts come in. We can help with targeted planning and technical implementation. As an independent supplier, we can offer you the precise solution that is tailored to your needs. No more and no less.

Challenge us. We are there for you around the globe.

WHEREVER YOU ARE.
WE ARE CLOSE.

SALES@REINHAUSEN.COM
OUR SERVICE PORTFOLIO. FOR YOUR TRANSFORMERS.

DIAGNOSTICS

Recognizing warning signs early can help protect transformers from defects and maximize their service life.

- **Oil analysis:** An essential tool for assessing the condition of transformers and on-load tap-changers. We provide support ranging from sample taking and laboratory analysis to the interpretation of results.

- **Tests:** Whether it's dynamic resistance measurement, vibro-acoustic diagnostics, or partial-discharge measurement, we offer all relevant test methods relating to transformers and on-load tap-changers.

- **Condition assessments:** We carry out all the necessary measurements in order to ascertain and evaluate the condition of transformers and all critical components.

TECHNICAL SERVICE

With our technical service offerings, we take care of your transformer over its entire lifecycle.

- **Installation & commissioning:** We provide support from delivery and installation right through to the commissioning of your new transformer (in selected regions).

- **Maintenance & repair:** Certified service technicians perform maintenance on all on-load tap-changer types and models around the world. We also carry out maintenance and repairs on the transformer.

- **Oil processing & regeneration:** We process the oil in transformers and on-load tap-changers and offer a drying service during operation.
MODERNIZATION

We upgrade your transformer to the latest technical standard:

- **On-load tap-changer replacement**: We offer on-site retrofitting solutions for on-load tap-changers. This reduces maintenance costs and enhances the availability of transformers.
- **Replacement of transformer accessories & components**: Our portfolio includes replacement for almost any motor-drive unit. We also offer retrofitting solutions for components such as pumps, bushings and controllers.
- **Technological upgrades**: Retrofitting with components such as our monitoring systems or vacuum on-load tap-changers (instead of oil technology) turns every transformer into a durable high-tech machine.

CONSULTING

For decades we have been the specialists for on-load tap-changers and transformers. Our expertise can offer you real advantages.

- **Fleet management**: With our new FLEETSCAN 2D assessment system, you can gain the perfect overview of your transformer fleet.
- **Solution engineering**: We provide advice on the design of transformers and offer tailored solutions even for project business.
- **Training & MRacademy**: We offer training and instruction at your premises or at one of our five training centers around the world.
MARC UNDERSTANDS YOUR TRANSFORMERS. AND HE CAN HELP YOU GET THE BEST OUT OF THEM.

Marc Foata,
Transformer Diagnostics Expert

For 25 years, Marc Foata was responsible for the Transformer Management area at a large energy provider. As a proven diagnostics expert, he helps you gain a better understanding of your power transformers and how to get the most out of them.
KEEPING ON TOP OF THINGS. REACTING AT THE RIGHT TIME.

From oil analysis and an entire range of transformer tests to assessing the condition of your transformer fleet: With our experts, you’re in the best hands. They help you use your equipment reliably and cost-efficiently at all times. To do so, they rely on their unique expertise, vast experience, and mobile measuring equipment.

Video: Tips and Tricks for Taking Oil Samples

Oil analysis. How we evaluate your transformer’s condition.

- Oil sampling services; provision of sampling kits
- Oil analysis under the supervision of our certified oil laboratory (internal or external)
- Interpretation of oil analysis data, e.g., Dissolved Gas Analysis (DGA) for transformers and on-load tap-changers
- Comprehensive documentation and graphic data processing on an on-line platform
- Clear statements on oil quality and moisture content
- Technically and economically sensible recommendations for action
- Increased operational reliability and prevention of interruptions and downtimes thanks to early fault detection
Tests. We measure all the necessary factors.

- Transformer winding ratio
- Winding resistance
- Short-circuit impedance
- Measurement of power factor / dissipation factor / capacitance
- Insulation resistance
- Magnetization current
- Frequency response measurement (SFRA: Sweep Frequency Response Analysis)
- Partial Discharges (PD)
- TAPSCAN® VAM (vibroacoustic measurements)
- TAPSCAN® DRM (dynamic resistance measurements)

Condition assessment.

Providing a clear picture of the current condition and practical recommendations for action.

Based on the results of the oil analysis and transformer tests, we prepare a detailed analysis of the condition. This leads us to develop specific recommendations for action and, if required, carry out the necessary measures for you.

Over 200 diagnostic projects worldwide since 2012

Mobile transformer diagnostics
For quick, flexible on-site diagnostics

Video: Transformer Diagnostics

TAPSCAN® VAM
Measuring the vibro-acoustic waves during the switching operation of a tap changer

TAPSCAN® DRM
Dynamic measurement of winding resistance during the switching operation of a tap changer

References
UWE IS ON HAND WHEN YOUR TRANSFORMER IS GIVING YOU PROBLEMS – OR EVEN BEFORE THAT IF NECESSARY.

Uwe Seltsam,
Transformer Service Expert

He used to travel to customers as a service engineer when customers needed fast support. Now Uwe Seltsam is the head of our global customer service. His motto: Providing service anytime, any place.
WE ARE ALWAYS AT YOUR SIDE. WITH HELP AND ADVICE.

Our service network is uniquely customer-oriented. Over 250 service technicians from 30 service centers around the world handle more than 6,000 service assignments per year. The range of services provided encompasses installation of new transformers, oil preparation measures, and the entire spectrum of on-load tap-changer maintenance. In addition to our products, we also maintain tap changers from Siemens or Trafo Union, licensed products as well as other third-party makes. All the service work is carried out by certified service technicians with special tools and original spare parts.

References
Maintenance & repair.

- Leak repair and regasketing of transformers
- Corrosion and rust removal, welding, and painting
- Repair or replacement of components
- Warranty on all service work
- 24/7 availability
- Shortest emergency response times
- Maintenance, service, and spare parts available for all (even old) MR on-load tap-changers and numerous third-party makes

Oil processing & regeneration. We offer an all-inclusive service.

Transformer oil processing
- Removal of particles, moisture, and gasses
- Vacuum filling of transformers
- Hot oil circulation

Mobile oil-filter unit
- Filtration of tap-changer oil, removal of water and particles
- No need to procure, dispose, or store any oil
- Compliance with all environmental regulations

Online transformer drying service
- Enables controlled drying of the transformer
- Unlike conventional drying processes, our Smart Drying System does not require the transformer to be shut off
ROBERT ENSURES YOUR TRANSFORMER LIVES A LONG LIFE, GIVING YOU PEACE OF MIND.

Robert Niedermeier,
Transformer Modernization Expert

Want to make your equipment fit for the challenges of the future? Robert Niedermeier is available to help you with his comprehensive practical knowledge in the areas of modernization and asset management.
TURNING OLD INTO NEW. SECURITY FOR YEARS TO COME.

The maximum service life for power transformers used to be 40 years. Today, some achieve a service life of 60 years or more. That is why it may make economic sense to replace components such as on-load tap-changers, bushings, or cooling systems. We create tailor-made service packages and also offer you complete project management if required. We equip your transformers with maintenance-free components, ranging from dehydrating breathers and indicators to pressure relief devices. What’s more, we install intelligent sensors so that all the data is transmitted to your control system. And we deliver the necessary transformer monitoring system as well.

References

- Video: OLTC retrofit & refurbishment of 9 power transformers
- Video: VACUTAP® UVT-LTX
- Video: Retrofit and refurbishment of 13 power transformers in Georgia

On-load tap-changer replacement. Reduces maintenance costs, increases reliability.

- Tailor-made retrofit solutions for discontinued on-load tap-changers
- Conversion to maintenance-free vacuum technology, economically and reliably
- Complete, turnkey project management
- Also for on-load tap-changers of manufacturers that no longer exist
Motor-drive unit replacement
Customers: Various 110 kV network operators
Replacement of old motor-drive units with TAPMOTION® ED by MR service technicians

OLTC replacement
Customer: Steelworks in Indonesia
Replacement of 3 OILTAP® M on-load tap-changers with 3 VACUTAP® VM®, as well as refurbishment of OILTAP® M tap changers in preparation as reserve tap changers

Retrofitting on-load tap-changers with vacuum technology
Retrofitting voltage regulators
Retrofitting a transformer control
Retrofitting a transformer monitoring system
Replacement of motor-drive units

Video:
Upgrading a 500 kV/400 MVA transformer in Canada

Video: Monitoring for transformers – TESSA® fleet monitoring unit
ALEXEI SHOWS YOU THE HEALTH OF YOUR FLEET AND WHAT YOU NEED TO DO TO KEEP IT DEPENDABLE.

Alexei Babizki,
Fleet Management Expert

Having spent years working in research and development, Alexei Babizki is quite familiar with getting to the bottom of technical problems. Now he is responsible for managing the product portfolio. That makes him the ideal partner for developing custom solutions for you.
TAILOR-MADE SOLUTIONS. FOR A LONG TRANSFORMER LIFE.

What is the right strategy for operating transformers in a reliable and cost-efficient manner for as long as possible? Our experts provide qualified answers to this question. Regardless of whether you have one transformer or an entire fleet – we are by your side with help and advice. An example is our new approach for condition assessment and fleet management, which we have developed with a renowned operator and an university. This combination of decades of manufacturing experience and scientific expertise gives you confidence that you are making the right decisions to ensure trouble-free operation.

References

Fleet management
A newly developed approach for transformer condition assessment and fleet management was successfully implemented at Rhineland’s grid operator (Rheinische Netzgesellschaft).

Assessing the condition of five phase shifting transformers at an American electrical utility company.

The FLEETSCAN 2D method helped to detect partial discharges in one of the transformers. The technical reason can be localized and rectified with a suitable diagnostics procedure.

Fleet management. We maximize the reliability and lifetime of your equipment.

- Condition assessment and fleet management of individual transformers or a whole transformer fleet
- Practical recommendations for action and detailed analysis for asset and service managers
- Flexible choice of assessment levels – 3-level approach to data collection and 2-dimensional transformer condition assessment
Solution engineering. Tailored to your needs.

- Development of customized solutions by our expert engineers
- Complete service from conceptual engineering to technically tested and approved solutions
- Simulations and technical calculations

Special solutions

Training & MRCademy. By professionals, for professionals.

- Hundreds of standardized training courses in various languages, plus customized training programs tailored to individual needs
- The range of topics includes transformers, on-load tap-changers, transformer accessories, and technical service
- Over 40 years of training experience
- Training centers in Regensburg, São Paulo, Kuala Lumpur, Suzhou, and Johannesburg
- On-site training possible, around the globe

MRCademy®
Cebu, Philippines
Topics range from protecting tap changers and power transformers to asset management and maintenance requirements.

MRCademy®
Valparaiso, Indiana, USA
The agenda includes both conventional training courses as well as hands-on demonstrations on products, led by Reinhausen’s experts in the electric utility industry.

Training
Our training center in Regensburg offers the ideal conditions for all kinds of technical training courses.
Mobile transformer testing in South Africa

Saves time and costs: With our mobile testing system, our service team at Reinhausen South Africa can investigate potential failure sources on power transformers directly in the primary substation.
NUMBERS THAT SPEAK FOR THEMSELVES.

Expert service from service experts
- Over 250 certified service technicians around the world
- Over 6,000 service assignments per year
- Our service technicians are qualified transformer experts. They are familiar with the technology – down to the very last detail. They specialize in every kind of tap changer, are equipped with special tools, and know all necessary steps
- Our project specialists have many years of experience and ensure that even large replacement projects run smoothly

Premium service providers
- Specially trained service technicians in all company locations
- Training and regular testing on each tap-changer type
- 24-month warranty for all the work we undertake

Immediately on-site
- 30 service centers around the world with spare-parts inventory
- 24/7 availability; if required, we can immediately send technicians wherever needed
- Support during commissioning

Original spare parts
- Spare parts for all on-load tap-changers produced by MR and numerous tap-changers produced under license
- MR service technicians only use original MR spare parts
- Measuring devices designed exclusively for MR, e.g., for dynamic resistance measurement (TAPSCAN® DRM)

Training
- Our own fully equipped training centers on every continent
- On-site training possible, including "live" maintenance
- Comprehensive product documentation for all products, also available online
Please note:
The data in our publications may differ from
the data of the devices delivered. We reserve
the right to make changes without notice.

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