

**HIGH**



**VOLT**

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**Test with the best.**

# TECHNOLOGY FOR THE FUTURE...

HIGHVOLT combines experience with innovation.  
Something our customers worldwide have relied on for years.

# FROM A LONG-STANDING COMPANY.

Dr. Ralf Bergmann, Hr. Bernhard Nick, Managing Directors

## 01 The company

High voltage is our specialty. HIGHVOLT Prüftechnik Dresden GmbH is a global leader in designing and manufacturing of high voltage test systems and measurement equipment. At our factory in Dresden, Germany, we develop and manufacture systems and equipment for testing devices used to transfer electrical power, such as transformers, cables, and switchgears. We also furnish research and educational institutions with our systems and equipment.

Our customers benefit in several ways from HIGHVOLT's diversity of products and our long-standing experience in engineering. For one, we offer the right technology for every testing situation, including several different types of AC test systems, DC test systems, impulse voltage test systems, impulse current test systems, and the associated measurement equipment. For another, we provide our customers with everything from one source, even including solutions for outfitting an entire test bay.

As your one-stop resource for every task, we will find the best solution for you and keep your interests as our chief concern. For example, an older system doesn't always need to be replaced right away. With the HIGHVOLT upgrade you can install a new, more powerful control in one of your older systems. After this "overhaul," your system will be operating like new, without needing to invest in new, more expensive high voltage components.

### Good advice is valuable

Experience, creativity, and time are needed to find customer-specific solutions. For this reason we believe that qualified customer service and consulting services are equally important. If requested, we will provide our customers with consulting on planning their high voltage test systems and walk them through the steps of erecting and commissioning the systems.

Good networking is how we stay on the cutting edge of the market and track down the current needs on it. And it allows us to react

quickly and flexibly to changes in the market. We foster our contacts to institutions of higher learning and are active members on a variety of boards, such as the International Council on Large Electric Systems (CIGRE), the International Electrotechnical Commission (IEC), and the Institute of Electrical and Electronics Engineers (IEEE).

### 100 years of experience

Our innovations are built upon a solid foundation. Our company has been in the business of high voltage test systems and measurement equipment for more than a century. HIGHVOLT Prüftechnik Dresden GmbH emerged in 1995 as a continuation of Koch & Sterzel, a company originally founded in 1904. The company was renamed to Transformatoren- und Röntgenwerk (TuR) after WWII. Since 2002 HIGHVOLT is a member of the Reinhausen Group.



# CLEVER IDEAS...

Even the most innovative solutions are just barely good enough for HIGHVOLT. Development of our comprehensive product portfolio is an ongoing process.

# SMART SOLUTIONS.

## 02 Technology and innovation

As a leader in innovation, HIGHVOLT tracks down the current trends on the market. We were the first company developing a mobile AC test system based on the static frequency converter to test high voltage cables and gas-insulated switchgears in the late 1990s. Our mobile test systems are sturdy and compact. They can be transported anywhere and set up quickly. Even in rough conditions, they continue to operate with absolute reliability.

Together with our customers we search for the best solution in each individual case. An example: The demand for transmission lines with long cable lengths is increasing, in particular due to the increasing significance of wind farms. Test systems need to be connected in parallel, for example, to test extremely long cable lengths. This is the only way to provide the required test power. Currently we are the only company that can connect a high number of systems in parallel. In so doing, we are the pioneers in reliable and economical testing of long cable lengths according to relevant IEC standards.

We were the first company to bring to market in 2006 the world's first test system for on-site testing of transformers based on the proven technology of the static frequency converter. We outfitted the system with a newly designed, intelligent control that makes it possible to maintain the IEC-compliant voltage waveform; in turn, the background noise level is kept low. With this innovation we could depart from the previously used motor/generator units.

We have also applied this technology to factory testing with increased power. The test system can be set up without taking up much room. It works cost-effectively, is easy to operate and efficient. The modular design of the system even allows for future expansions.

And this modularity is one of the advantages of our test systems. From our broad range of mature products and intelligent components, we put together high-quality systems that are tailored to our customers' specific needs.

The HIGHVOLT Suite® embodies the aspects of time-savings and user-friendliness in its design. Enormous quantities of data need to be processed when testing several systems at once. Numerous measurement results need to be captured, stored, and logged. Here's where the HIGHVOLT Suite® comes into play. It greatly simplifies the procedure because several systems and measurement devices are operated via an intuitive, fully-automatic control unit. This way test systems can be controlled using a standard user interface and the measurement results can be compiled in a centralized database. You no longer need to copy data from a variety of sources for logging, meaning less work and fewer errors. In the process you save time and receive more reliable measurement results.

# NEVER BY HALVES...

HIGHVOLT offers complete solutions.  
You will be thoroughly satisfied.

# COMPLETE SOLUTIONS ONLY.

## 03 Complete solutions

Too many cooks spoil the broth, especially if you lose track of where the ingredients come from because of all the contributors. Our customers won't find themselves in this tricky situation. As a provider of complete solutions, HIGHVOLT offers all services from one source, from entire test bays right down to individual systems. In this manner we can guarantee that every detail lives up to our high expectations for quality. All components fit together excellently and even complex systems can be operated reliably and intuitively via a standard user interface.

Our broad offering of products for high voltage test systems and high current test systems, including ultra high voltages, ranges from AC test systems and DC test systems, to impulse voltage test systems, impulse current test systems, and the associated measurement equipment.

### A variety of applications

We offer more than just proven technology. Consulting and support services related to test systems are also part of our comprehensive service offering. HIGHVOLT is your one-stop resource for all your needs, such as consulting services when planning a system, upgrading older test systems, looking for calibration services, or creating the layout for a test bay.

The diversity of our product range is mirrored in the possible applications for HIGHVOLT test systems. Our systems have proven themselves in testing transformers, cables, SF<sub>6</sub> and air-insulated switchgears, instrument transformers, and arresters. The range of applications spans the gamut from routine testing and on-site testing with our mobile systems to special tests. Our products are also in high demand in R&D departments.





## Products & Services

- ### HV & HC Test Systems
- AC
    - AC resonant test system with variable inductance
    - AC resonant test system with variable frequency
    - AC test system based on static frequency converter
    - AC test system based on transformer
    - High current AC test system
  - DC
  - Impulse voltage & impulse current

- ### Complete Test Bays
- Consulting services for test bay layout
  - Standardized control interface
  - Measurement devices
  - Shielding

- ### Accessories
- Trailers and containers
  - Cable end termination systems

- ### Support & Service
- Consulting services
  - Tutorials
  - Calibration service
  - Upgrade of test systems
  - Maintenance & repair

## Applications

- Routine tests
- Type tests
- On-site tests
- Research & development
- Special tests

- Cables
- Transformers & shunt reactors
- Gas-insulated switchgears
- Bushings
- Arresters
- Capacitors
- Instrument transformers



# OLD SYSTEMS ARE OFTEN EXHAUSTED...

HIGHVOLT has a heart for antiques.  
We install new controls in old test systems, improving their efficiency.

# WE BREATHE NEW LIFE INTO THEM.

## 04 Upgrading systems

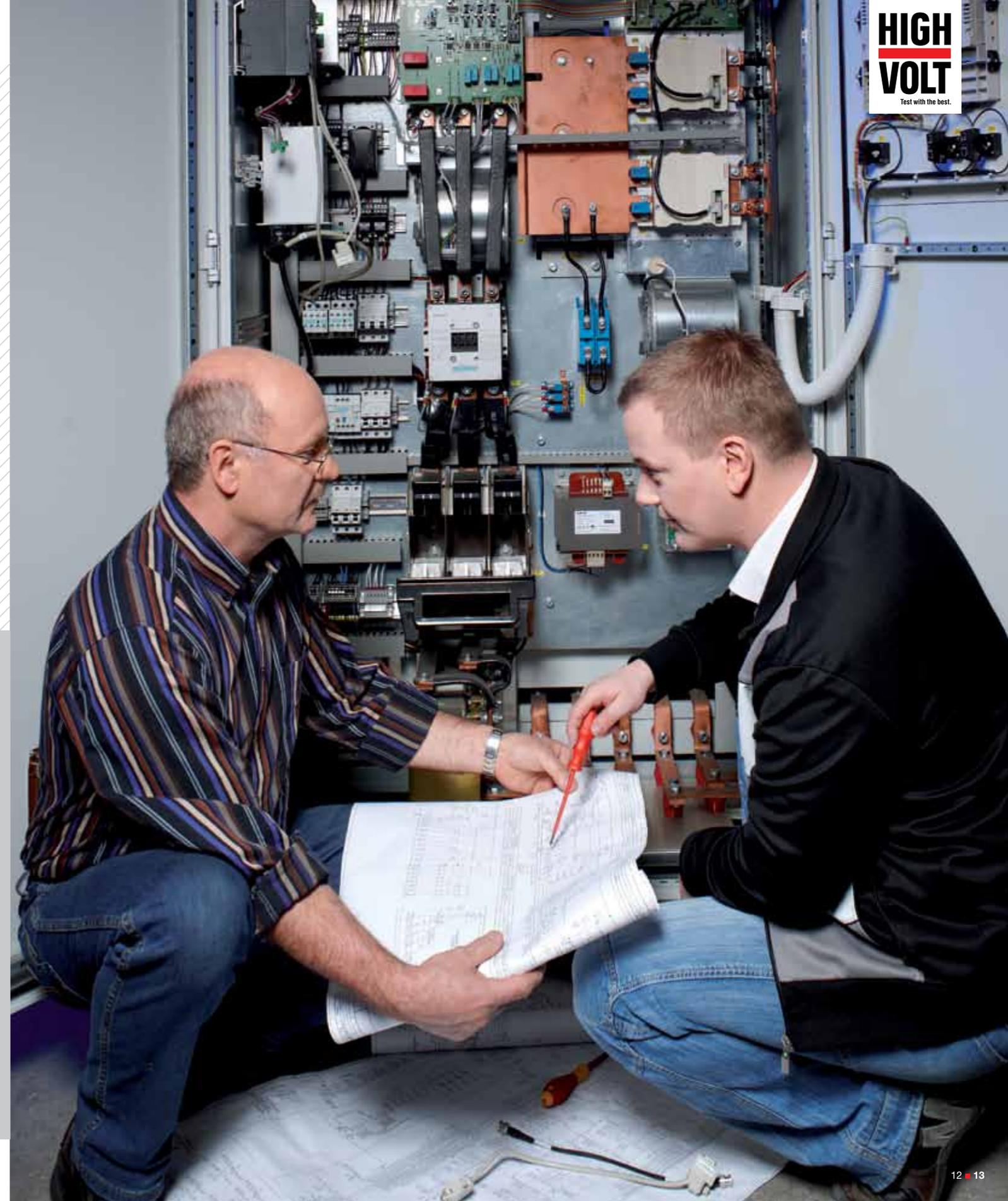
High voltage components have a long lifecycle. They will provide more than 30 years of true service on average. However the picture is somewhat different for the control in the systems. Nowadays software and controls become outdated due to the rapid pace of technological progress, often in five, yet at the latest in ten years. An upgrade is called for in order to bring system performance back up to par. Upgrades are a quick and cost-effective option, breathing new life into an old system, yet without having to replace the expensive high voltage components.

HIGHVOLT conducts these overhauls, and not only for our proprietary test systems. We also implement them in third-party products. The decision to use modern HIGHVOLT control systems, software, and measurement equipment is a worthwhile one because these components are at the core of any test system. They determine how well the test system works.

### Lower costs – precise results

That's why HIGHVOLT places high expectations on the control. We use the SIMATIC S7, the tried-and-true control used around the world in industrial applications. HIGHVOLT writes the software itself and customizes it based on customer requirements. The measurement equipment for measuring voltage is state-of-the-art and was developed by HIGHVOLT. It is integrated into the control, along with other measuring tools such as those for PD measurement.

Test bays that have been modernized using HIGHVOLT controls are substantially more efficient and produce precise measurement results. The test procedures can be controlled, monitored, and evaluated from a central location via a computer. The data is automatically compiled in a test log, which makes it unnecessary to capture the data from different sources. Consequently, the error rate is greatly reduced. Enhanced and faster test procedures—you cannot find more convincing arguments for upgrading your systems using HIGHVOLT products.



# INCLUSIVE: OUR SERVICE...

HIGHVOLT bundles excellence in technological expertise with a long-standing service record. Your system will perform at the highest of standards.

# EXCLUSIVE: OUR RELIABILITY.



## 05 Consulting and customer service

Keeping systems working at their best at all times is our goal. If a malfunction should occur, our service is there for you to quickly remedy the problem—no matter where in the world it happens. Usually, you will receive your answers directly from our hotline, which fields your questions and provides constructive solutions. For more intricate problems, you will be referred to our Remote Access service. It connects the customer's system to the HIGHVOLT service center via the Internet. This way our experts can size up the situation directly, analyze it, and react quickly. If necessary, our customer service staff can deploy someone to your location to quickly and competently resolve the problem. In addition we can provide replacement parts at reasonable rates.

In any case the qualified staff in our customer service department is ready to help. Purchasers of a HIGHVOLT system receive assistance in erecting and commissioning the system, as an added bonus. In addition we train your employees in proper operation of the new system.

Furthermore we offer on-site calibration services of test systems worldwide according to IEC. It makes no difference if the test systems were manufactured by HIGHVOLT or another company. Our calibration lab is certified by the German Accreditation Body GmbH (DAkkS, formerly DKD) according to DIN EN ISO/IEC 17025, which means we fulfill the national standard set by the Physikalisch-Technische Bundesanstalt (PTB).

Many of our customers are expanding their product portfolios to include higher voltage levels. As a consequence, their test bays need to be retrofitted or some will even need to redesign them. Our team of consultants will prove to be valuable when planning the new test bays. We provide consulting services for the planning stage from the outset. We offer recommendations for dimensioning the test systems, create a layout for the test hall, instruct you on earthing and shielding, and make suggestions regarding the best possible test setup.

Careful planning aims at providing an effectively designed test procedure. Conscientious efforts in designing the layout will result in faster implementation of the final test setup. The time needed for the test processes is also reduced to a minimum, without compromising quality. On request, our qualified staff is prepared to assist customers offering support with initial testing or even with particularly important tests.

### Sharing knowledge

We gladly share our knowledge and expertise with you, for example, through tutorials, which we can offer worldwide. Any and all users, whether a HIGHVOLT customer or not, as well as anyone curious about the technology are welcome to participate in these compressed courses on high voltage test systems and measurement equipment. Our course offering spans the gamut from teaching the basics to handling specific issues in the industry. And our experienced and qualified staff has practical answers to all your questions. Our staff is well-versed in conveying complex issues in

plain terms, because they regularly give lectures on high voltage technology at universities across Germany.

### Everyone benefits from the exchange

Interaction with users of our test systems means much to us. We appreciate feedback from our customers, which helps us to further develop our products. Users' practical experiences with HIGHVOLT test systems are valuable for all other customers, too. "Peer networking" and regular interaction between experts and users are beneficial to everyone. We would like to foster this dialogue by hosting workshops. The response from users has been overwhelmingly positive, such that we will definitely be expanding our workshops.

# THOSE IN THE KNOW SAY WE'RE GOOD...

HIGHVOLT works with the world's best recognized quality management system.  
We continually test and optimize running processes.

# YET THAT'S NOT NEARLY ENOUGH FOR US.

## 06 Quality management

You can only attain quality if all prerequisites have been met. For this reason, HIGHVOLT pays careful attention to the highest standards in all fields. Our staff plays a vast role in ensuring the quality of our products and services. We primarily employ engineers and highly qualified specialists whose knowledge is incorporated into the manufacturing process of our test systems. Our staff regularly attends in-house and field training courses to maintain their skills at the highest level.

Our modern manufacturing concept helps to guarantee a consistently high level of quality. We put together custom systems based on the customer's specific requirements using proven, standardized components. It allows us to guarantee the high level of quality for all components.

We develop and manufacture key components in-house, such as controls and transformers. Devices or components that we do not manufacture ourselves are purchased from leading manufacturers, whom we also audit regularly.

### **Tested before delivery**

No measuring device, component, or even system leaves our plant without having successfully met our standards in our own test bay—a guarantee of our systems' quality. This quality assurance check takes place in our high voltage hall, one of the largest of its kind in the world.

It goes without saying, but our quality management is also certified. Our company implements the ISO 9001 standard.

