TEST CASES

ON-SITE TESTS

ROUTINE TESTS

SAMPLE TESTS

TYPE TESTS

PREQUALIFICATION TESTS

RESEARCH AND DEVELOPMENT TESTS

SOLUTIONS

AC TEST SYSTEMS

DC TEST SYSTEMS

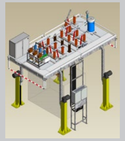
IMPULSE VOLTAGE TEST SYSTEMS

CONTROL SYSTEMS

MEASURING SYSTEMS

ACCESSORIES

SUPPORT AND SERVICE



CONSULTANCY

- Analyzing of test requirements
- Test field layout
- Shielding and earthing recommendations
- Safety concept
- Cable routing
- Design of control and measuring systems
- Supervision of construction works
- Turnkey solutions

UPGRADES

- Extending life cycle of HV components by exchange of control system
- Examination of aged systems
- Upgrades of control and measuring systems for HIGHVOLT and third party systems
- New automation features for test, measurement and evaluation of results for time saving procedures
- Upgrades of technical parameters for HIGHVOLT systems

CALIBRATION

- Accredited inhouse calibration lab according to ISO/IEC 17025
- Traceable to national and international standards
- For voltage, current, power, capacitance, etc.
- Calibration services available at our facilities and worldwide
- Reference measuring systems used by several national laboratories

TUTORIALS AND TRAINING

- Sharing knowledge
- In-house and external tutorials
- Hands-on operator training as part of each system's commissioning
- Covering general HV techniques, test objects and test voltages, the practical side of test and measurement, test data evaluation, fault diagnosis, addressing specific questions, etc.
- Adapted topics as per customer request

MAINTENANCE

- Systems designed for low maintenance effort
- Necessary maintenance clearly described
- Complete documentation
- Scheduled or usage-dependent maintenance plans available
- Can be combined with regular calibration visits
- Spare parts readily available, controls based on Simatic S7 modules

SERVICE AND REPAIR

- Systems have high reliability
- HV components usually tested at 120 % of rated voltage before delivery
- Built-in remote diagnostic module in most systems
- Telephone and on-line service to solve most problems within few working days
- Large team of specialists available for immediate on-site assistance

For further information please contact:

HIGHVOLT Prüftechnik Dresden GmbH
Marie-Curie-Straße 10
01139 Dresden
Germany

Phone +49 351 8425-700
E-mail sales@highvolt.com
Web www.highvolt.com

HIGH VOLT
Test with the best.®

PRODUCT PORTFOLIO TEST AND MEASURING SYSTEMS

- Quality made in Germany
- Standardized and customized solutions
- Turn key projects, all from one hand

0.1-1/2 Product Portfolio Test and Measuring Systems

APPLICATIONS

TEST OBJECTS

CABLES AND ACCESSORIES

TRANSFORMERS AND REACTORS

GIS AND GIL

SURGE ARRESTERS

MOTORS AND GENERATORS

OTHER TEST OBJECTS

AC TEST SYSTEMS

TRANSFORMER BASED SYSTEMS 50/60 HZ FOR GENERAL APPLICATION

WP with PEOI
- Insulating case transformers
- For low power applications
- Compact size

WP with PEO
- Transformers in steel tank
- For higher power applications
- Continuous operation

WP G and WPG G
- Oil or SF_6 insulated transformers
- For GIS/GIL testing
- Winding temperature monitored

RESONANT TEST SYSTEMS 50/60 HZ FOR HIGHER POWER

WRM
- Modular HV reactors
- For testing cables and power transformers
- Parallel and series connections

WR
- Steel tank HV reactor
- For testing capacitors, MV cables and generators

WRU
- Steel tank HV reactor
- For testing MV and HV cables
- Internal tap changer for optimum power adaption

TEST SYSTEMS WITH FREQUENCY CONVERTER FOR TRANSFORMER TESTS

WV
- For testing power transformers up to 2000 MVA and shunt reactors
- Mobile and stationary use

HVCC capacitor bank
- Manual or automatic switching
- For testing power transformers up to 2000 MVA
- Mobile and stationary use

DiTAS
- For testing distribution transformers up to 5 MVA
- Mobile and stationary use
- Fully automated system available

RESONANT TEST SYSTEMS WITH FREQUENCY CONVERTER

WRV G and WRVG G
- Oil or SF_6 insulated HV reactors
- For GIS testing
- Directly flanged to test object
- Factory and on-site use

WRV T
- Steel tank HV reactors
- For testing HV cables on site or for submarine cables in factory
- Use of multiple systems for long cables

WRV TM
- Steel tank HV reactor
- For testing MV cables, motors and generators
- Compact size, low weight

HIGH CURRENT TEST SYSTEM

WRV M
- Insulating case HV reactors
- For testing GIS and transformers (applied voltage)
- Compact size, low weight
- Factory and on-site use

HCTS
- Fixed or hinged core transformers
- For testing MV and HV cables, connectors, switchgears, etc.
- Integrated compensation

HV MODULE TEST SYSTEMS

HSBS module system
- AC, DC and impulse voltage
- Highly flexible modular test system setup
- For student education

TECHNICAL PARAMETERS

AC test systems 50/60 Hz			
Test system	Voltage ratings	Current ratings	Test power
Transformer insulating case (WP PEOI)	100...1000 kV	up to 1 A	up to 1000 kVA
Transformer metal tank (WP PEO)	60...1800 kV	up to 10 A	up to 2400 kVA
Transformer SF_6 insulated (WPG G)	510...1050 kV	up to 0.76 A	up to 800 kVA
Resonant reactor, modular (WRM)	250...1600 kV	up to 112 A	up to 56000 kVA
Resonant reactor, two taps (WR)	6...200 kV	up to 833 A	up to 6800 kVA
Resonant reactor, tap changer (WRU)	45...350 kV	up to 50 A	up to 10000 kVA
AC resonant test systems with variable frequency			
Test system	Voltage ratings	Current ratings	Test power
For GIS testing (WRVG G)	400...750 kV	up to 1.9 A	up to 2 MVA
For transformer, GIS and short cable testing (WRV M)	160...800 kV	up to 10 A	up to 6 MVA
For HV cable testing (WRV T)	110...520 kV	up to 500 A	up to 210 MVA
For MV cable testing (WRV TM)	25...50 kV	up to 25 A	up to 1560 kVA
AC high current test systems for heat cycle testing			
Test system	Current ratings	Voltage ratings	Test power
High current test system (HCTS)	up to 7000 A	up to 100 V	up to 1 MVA

DC AND IMPULSE TEST SYSTEMS

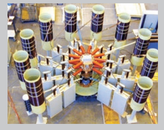
DC VOLTAGE TEST SYSTEMS

GP
- High power DC test system
- Extremely high voltage available
- Continuous operation

FGP
- High power DC test system
- Outdoor system for testing of outdoor HV equipment
- Continuous operation

GPM
- Compact, powerful DC modules
- Mobile and stationary use
- Integrated HV divider

IMPULSE CURRENT AND VOLTAGE TEST SYSTEMS



IP S
- For testing arresters, fuses, etc.
- Low inductance design for optimum wave shape

IP L
- Low inductance design for optimum wave shape
- Modular design for on-site testing
- Resistor storage at each stage for series G

IP M

IP G

AC induced voltage test system for transformers and reactor testing			
Test system	Voltage ratings	Test power	Nominal power of test object
Power transformer test system (WV + HVCC)	40...200 kV	up to 6 MW/> 200 MVA	2000 MVA
Distribution transformer test system (DiTAS)	5 kV	up to 170 kW/500 kVA	5 MVA
DC test systems			
Test system	Voltage ratings	Current ratings	Test power
DC system (conventional, GP)	200...2000 kV	up to 100 mA	up to 200 kW
Outdoor DC system (FGP)	200...2000 kV	up to 100 mA	up to 200 kW
DC module system (GPM)	400...1600 kV	up to 40 mA	up to 24 kW
Impulse current test systems			
Test system	Current ratings	Charging voltage	Impulse energy
Impulse current test system (IP S)	up to 240 kA	up to 100 kV	up to 250 kJ
Impulse voltage test systems			
Test system	Cumulative charging voltage	Stage charging voltage	Impulse energy
Small impulse test system (IP L)	100...1200 kV	100 kV	up to 60 kJ
Medium impulse test system (IP M)	500...2400 kV	100 kV	up to 200 kJ
Large impulse test system (IP G)	1000...6000 kV	2 x 100 kV	up to 900 kJ

CONTROL AND MEASURING SYSTEMS, ACCESSORIES

MEASURING SYSTEMS

HiRES transient recorder
- Flexible hard- and software configuration
- Manual and automatic measurements
- Potential free probes available
- Extremely EMI proof for exact results in harsh conditions

LiMOS transformer loss measuring system
- Load and no-load loss measurements
- One compact unit containing voltage and current sensors
- Disturbance free optical data transmission

PiDAS partial discharge measuring system
- For power and distribution transformers, cables, GIS and other components
- Disturbance free optical data transmission
- Factory and on-site tests

ACCESSORIES

Connection Point
- For impulse test systems
- Voltage divider, chopping gap and overshoot compensation in one device
- Time and space saving

Dividers and shunts
- Available for current, voltage, tan delta, PD, capacitance, etc.
- Calibration traceable to national PTB standards
- Available as reference measuring dividers

HiRES Locator
- Breakdown location on-line or during HV testing
- Cable lengths > 200 km
- Applicable for all AC and DC cables

Control system HiCOS
- Unified control system for all HV test systems
- Integrated safety system
- Measurements of all tests in one protocol
- Integrated data base

Cable termination system
- Used as PD free cable termination during HV tests
- Automatic water conditioning unit

Shielded room
- Low background noise level for sensitive PD measurement during HV tests
- Various sizes available
- Including ventilation, air conditioning, control rooms, air cushion floor, etc.