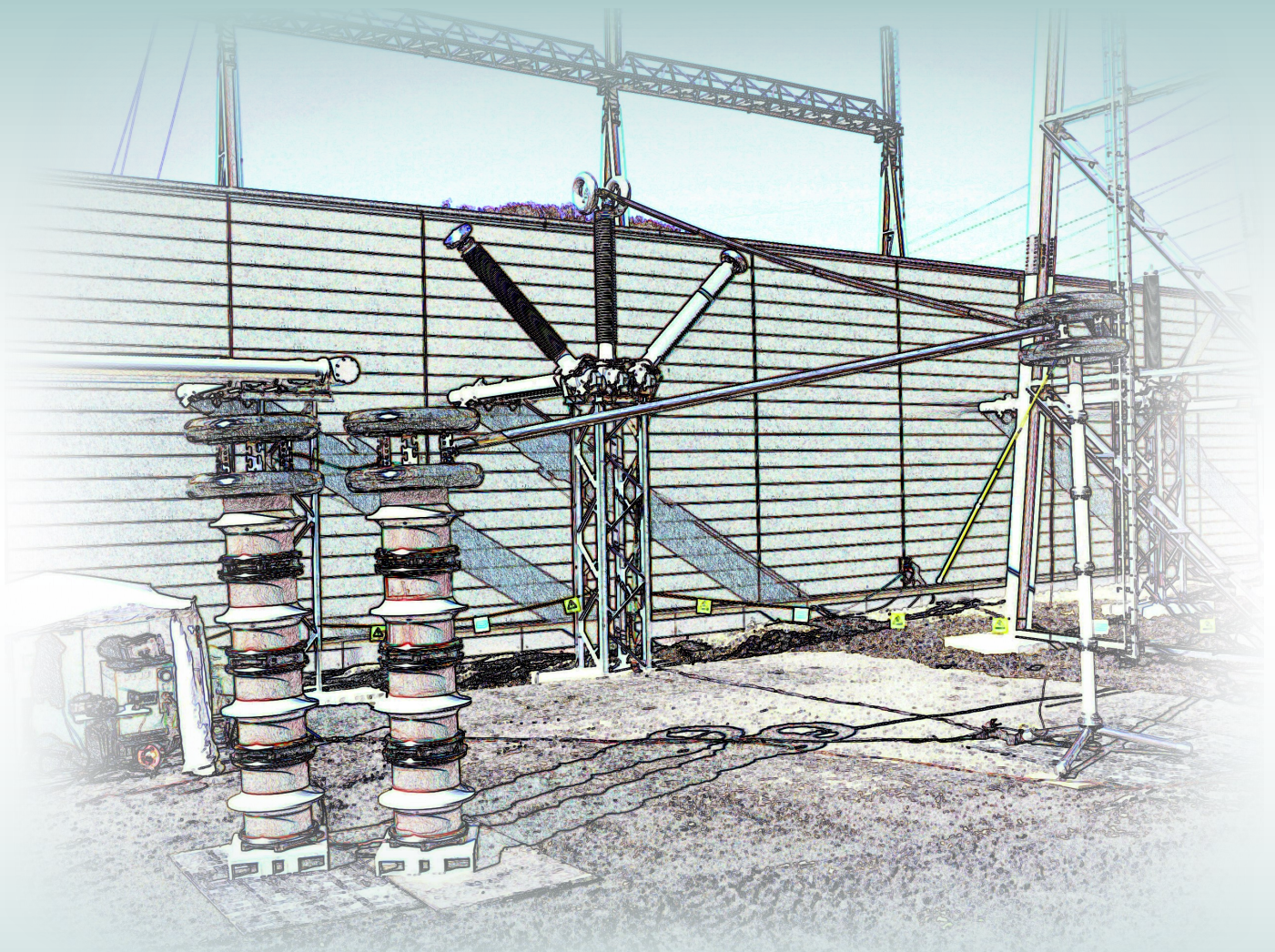




High Voltage Testing and Engineering Commission
Fachkommission für Hochspannungsfragen
Portrait

FKH and her targets

What is FKH?

The High Voltage Testing and Engineering Commission (known by its German abbreviation 'FKH') is a non-profit association. We offer you our extensive portfolio of modern testing services on components of the high-voltage grid infrastructure at cost price. With a team of experts in this field and an extensive range of test systems (mostly for mobile deployment), FKH has specialised in on-site testing as well as diagnostic measurements and analyses for electrical high-voltage equipment of all types. In addition, we provide support for our members and customers by offering expert advice and studies on the quality status, in-service behaviour and environmental compatibility of high-voltage grid components.

FKH has approximately 60 members, including energy utilities, industrial manufacturers, railway operators and engineering offices; it provides a platform for knowledge transfer among its members and offers support for the younger generation of specialists in the field. The association addresses overarching technical issues related to the electrical power supply infrastructure and collaborates with specialist bodies to develop technical recommendations.



The association develops high-voltage testing methods and operates specialised test systems that it can deploy to ensure the quality of its members' high-voltage equipment and systems

FKH was established in 1937 for the purpose of studying problems related to high-voltage technology, at a time when the Swiss high-voltage grid was in an early stage of its development.

In that period, FKH focused in particular on the coordination of insulation in the context of atmospheric overvoltages; the knowledge thus acquired was essential for the voltage dimensioning of grid components.

Recent decades have seen an increase in the requirements for grid availability, accompanied by optimisation of lifetime costs for high-voltage equipment. In response to these developments, FKH has built up an extensive stock of know-how on diagnostic methods for condition assessment that have also been tried and tested under practical conditions. FKH endeavours to continue developing and rationalising its testing methods with a consistent focus on its overriding objective: to promote high availability of electrical equipment in the high-voltage grid.

This brochure aims to give you an introductory overview of our organisation, the goals we work towards and the activities we undertake. If you are interested, we shall be glad to arrange a personal discussion to provide you with more information. You can also find technical information on our homepage (www.fkh.ch) and in the brochures describing our standard services.

FKH organises symposiums and seminars to encourage the development of know-how in its specialist areas



Mission statement

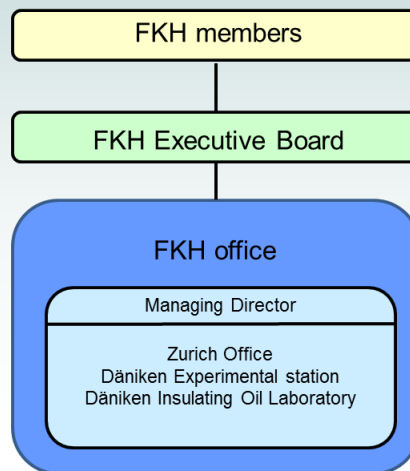
The High Voltage Testing and Engineering Commission (FKH) pursues purposes of public benefit in the fields of technical research and development and provides services related to electrical power supply technology and high-voltage engineering. The association's activities aim to promote the efficiency, performance capability, safety and reliability of electrical power supplies.

In addition, FKH collaborates with technical colleges and universities to promote the

younger generation of engineers by offering a range of practice-oriented work assignments.

FKH's objectives are of a purely technical nature. The association does not pursue any financial or commercial objectives in its own interest. FKH's financial resources may solely be used for purposes compliant with its articles of association.

Structure of FKH



Quality

FKH offers its services in compliance with internationally recognised business standards and operates a management system certified to ISO 9001.

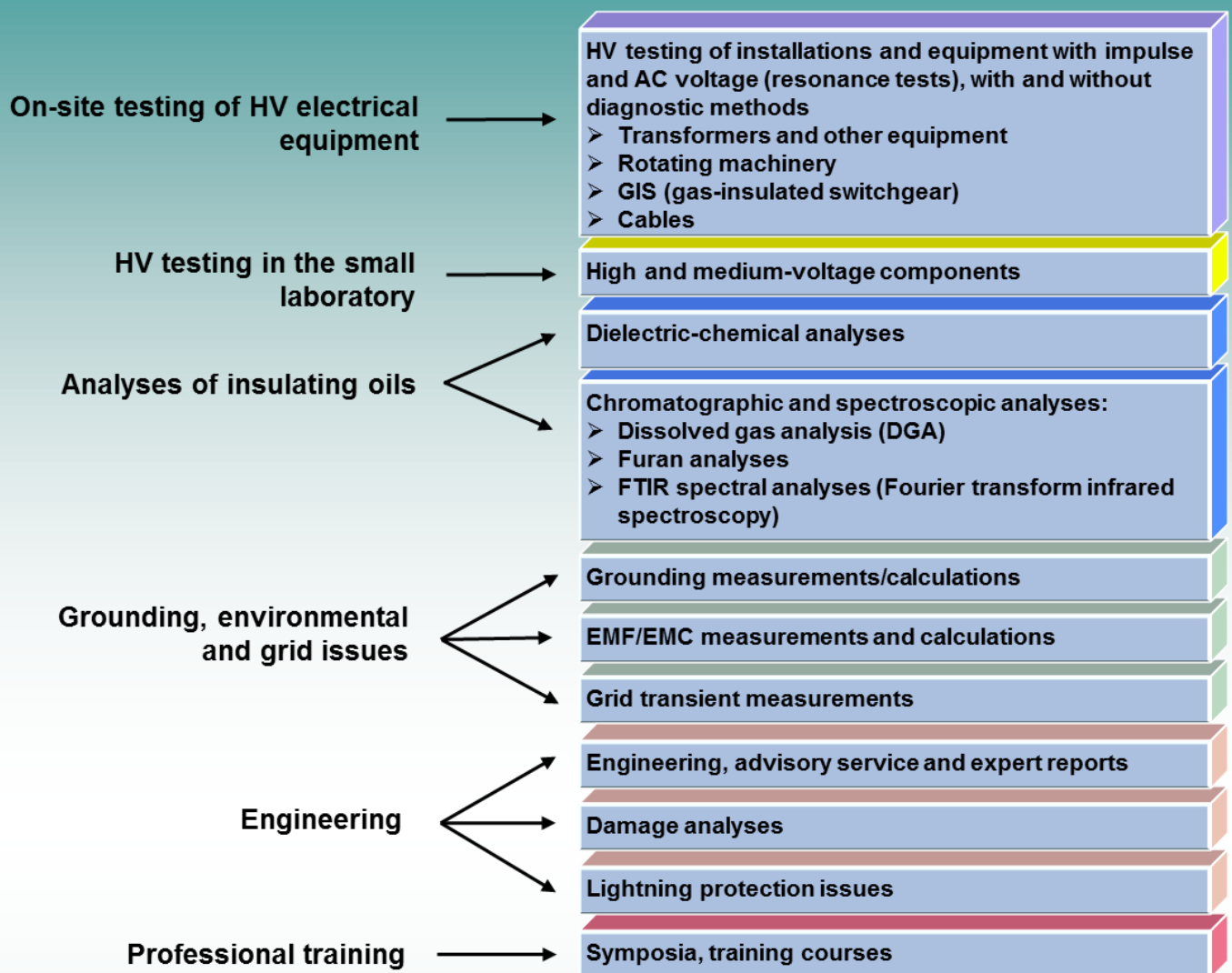


The Insulating Oil Laboratory is accredited as a testing laboratory for insulating oil and Buchholz gas as per standard ISO/IEC 17025.

High-voltage resonance testing of a 220 kV GIS with test voltage supplied via outdoor bushings



Overview of standard services



Excitation of a grid interconnection transformer for the partial discharge measurement in a substation



Grounding measurement system: feeding a test ground fault current into an overhead line in a substation

The team at the FKH office will attend to your orders, always with the focus on quality and professionalism.

“The only things that cannot be copied are a company's relations with its employees and the employees' relations with their customers! ”

Klaus Kobjoll, entrepreneur

Zurich Office



Reinhold Bräunlich
Dr. sc.techn. ETH
Managing Director



Günther Storf
Dipl. El.-Ing. ETH
Deputy Managing Director
Project Engineer



Vahe Der Houhanessian
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Project Engineer



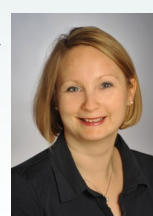
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Project Engineer



Adamo Mele
Electromechanical Engineer

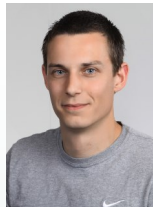


Saskia Muraro
Executive Secretary

Däniken Experimental Station



Stefan Neuhold
Dr. sc.techn. ETH
Project Engineer



Mario Gobell
Dipl. El.-Ing. FH
Project Engineer



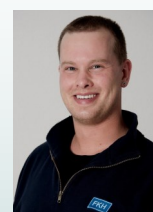
Martina Stadelmann
Msc ETH EETT
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Markus von Arx
Electrician



Simon Mutter
Power Electronics Specialist

Contact for the French-speaking region of Switzerland



Tobias Felber
Linesman



Pascal Fehlmann
Dipl. El.-Ing. FH
Project Engineer

Däniken Insulating Oil Laboratory



Thomas Helzmann
Dr. sc.techn. ETH
Laboratory Manager



Peter Frey
Laboratory Chemist



Franziska Schenker
Laboratory Chemist

Infrastructure

- ⇒ Däniken logistics centre with depot and experimental workshop
- ⇒ Laboratory for insulating oil analyses and special experiments on insulating materials (dielectric-chemical and spectroscopic methods using GC, HPLC and FTIR)
- ⇒ Däniken open-air test site with 1 MV test transformer
- ⇒ Small laboratory with partial discharge measurement facility
- ⇒ Mobile, modular system of series resonance test rigs with resonance chokes (total 30 units), 4 resonant supply sources, accessories for corona-free test setups; tests with apparent power of up to 25 MVA and voltages of up to approx. 800 kV are possible
- ⇒ Test source for excitation and partial discharge measurement of large transformers in situ, with a frequency converter and step-up transformer
- ⇒ Mobile Impulse generator for lightning surge, switching and oscillating surges up to peak values of 1,200 kV and charging energy of up to 40 kJ
- ⇒ Grounding measurement system for measurement currents of up to 200 A
- ⇒ Test van and trailer with towing vehicle
- ⇒ Extensive technical measurement equipment for insulation diagnostics, grid transients and EMC measurements
- ⇒ Collections of specialist literature, standards and scientific calculation programs



1000 kV test transformer at the Däniken Experimental Station



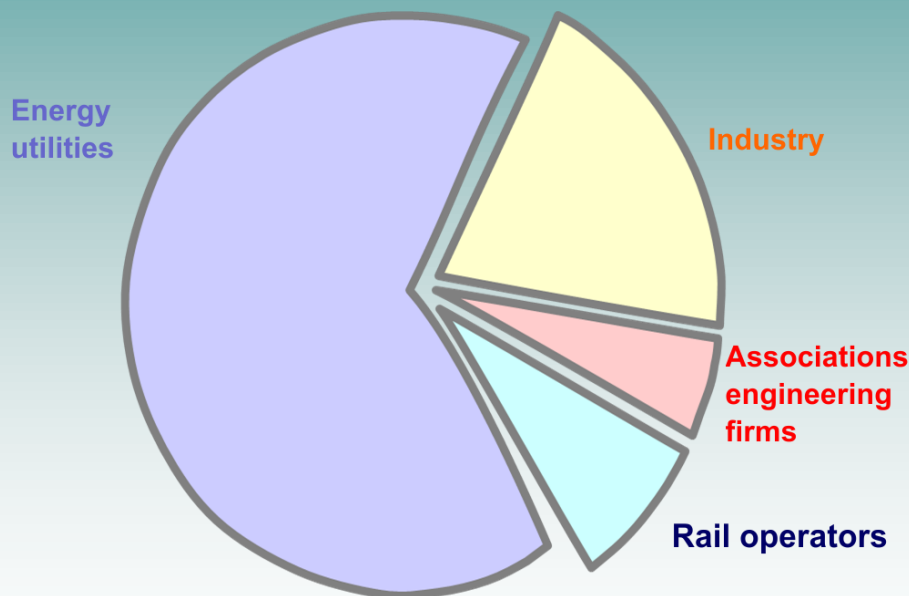
Mobile testing equipment: impulse generator, series resonance test system



Däniken Insulating Oil Laboratory

FKH Members

FKH is an association with members in Switzerland and abroad. This chart shows the approximate breakdown of members.



FKH members benefit from:

- ⇒ Members' discount of 10% on all services provided by FKH itself (testing services and expert opinions)
- ⇒ FKH's activities to promote the development of specialist knowledge in the field of high-voltage technology and related disciplines
- ⇒ Specialist information issued to members
- ⇒ Access to an extensive collection of literature and standards in the field of high-voltage technology
- ⇒ Specialised events and courses organised and staged at discounted prices for employees of corporate members
- ⇒ Development work on high-voltage testing methods and implementation of research projects; the results are made available to members
- ⇒ Promotion of the younger generation of specialists through collaboration with Switzerland's technical colleges and universities
- ⇒ FKH provides a forum where specialists can contact one another and where business contacts can be initiated within the industry

The annual FKH subscription for corporate membership is based on the member company's code that determines the number of votes allocated to it at Electrosuisse.

The minimum annual subscription is two contribution units of CHF 1,300.00.

Should you be interested, we shall be glad to send you the provisions governing membership contributions.

Testing of gas-insulated switchgear (GIS)



**Determining the water content in insulating oil
with the help of Karl Fischer titration**

Locations of FKH on-site assignments during 2013



FKH

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