

High Current AC Test Systems



**THE ADVANCED SOLUTION FOR
HIGH CURRENT AC TESTING**

agea - kull ag
Electric Apparatus, Meisenweg 1
CH-4552 Derendingen Switzerland

Fon: +41 32 681 54 24
Fax: +41 32 681 54 20

E-mail: info@agea-kull.ch
Web: www.agea-kull.ch

High Current AC Test Systems

Application

AC high current test sets are required for precision and calibration measurements on all kind of current transformers, for heat run tests on high current equipment or type test on power cables. They are used as mobile test sets on site or fix installed in test laboratories and measuring booths.

Current Transformer Testing

Sinusoidal test currents and a fine current adjustment are required for a precise measurement of current transformers. Several features of the *agea-kull* instrument transformer test sets ensure the compliance with these requirements:

- step-down transformer
- tertiary windings
- fine regulation system
- adjustable voltage increase speed

Combined Instrument Transformer Test Systems

Additional equipped with a high voltage transformer, combined test systems allow voltage and current tests on all kind of instrument transformers with one unit. They are suitable for calibration measurement on CT's and VT's and for potential tests on both. *agea-kull* delivers test systems where a high voltage and a high current transformer are excited and controlled by a common regulating and control system already for decades of years now with typical currents of up to 20kA and voltages in the range of 50-500kV.

Heat Run Testing

Either current or temperature controlled, allow these test sets long duration current and temperature investigations on current bars, connectors, contactors, power breakers, isolators, bushings and power cables. The measured temperatures and currents are stored in a data logger or by a sophisticated and customized protocol software.

Master-Slave Power Cable Test Systems

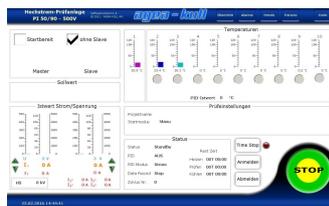
The master test set with a grounded reference cable for the temperature measurement defines the current, while the slave test set with the cable under test ensures always the same current flow. This allows performing step- and breakdown tests while the cable is heated by current.

Integrated High Voltage High Current Test Sets

The combination of a master-slave high current test arrangement with a high voltage transformer, controlled by a common PLC based control system enables fully automatic heat run and step-tests on high voltage power cable samples. Systems with up to 2x 50kA and 800kV can be delivered.

Tailor-made Solutions

agea-kull designs and builds transformers and test systems tailor made to the requirements of the customers. The controllers and the software are customized and will be adapted to the actual requests.



Example for a customized software screen

Design of Components

High Current Transformers

Turn Trough Transformer

This kind of transformer requires no secondary winding. It is built into a protection housing with a hole for turn trough a cable. This cable and the test object form the secondary winding and the number of turns determines output voltage and current. Alternative a current bar can be turned trough the transformer.

Cast Resin Transformer

Several secondary windings - which can be switched in series or parallel - allow the adaptation of the test set to the actual load condition. All windings are casted for protection. Therefore this kind of transformer is very suitable for on-site applications.

Both kinds of test transformers can be equipped with low power tertiary windings. These windings allow sensitive testing with lower load currents.

Open Core Transformers

Power cables are too heavy to be turned trough a hole. Therefore the side yokes of this transformer type can be removed. Castors allow an easy handling of the side yoke and fasteners a quick installation.

Power Supplies

SCR Controller

Phase angle controls are an economical solution for heating systems. They generate however a disturbed current and are not suitable for precision measurements.

Regulating Transformer

Column type regulating transformers of the *agea-kull* 1ST1/70 series enable the adjustment of the output current with sinusoidal current shape. For a more sensitive current regulation, a fine regulation system is installed. This system enables a fine regulation in a range of about +/-5% I_{max} . A matching transformer with taps increases the sensitivity of the regulating system at low voltages.

Frequency Converter

Converters enable the generation of sinusoidal currents of different frequencies. They are available for fix frequencies or for a certain frequency range.

Compensation

The inductive load current can be compensated by capacitors in the primary circuit of the high current transformer. This reduces the required mains power and the size of the power supply.

Controls

Standard Control Unit

The robust relay based control unit can either be integrated in the control cubicle or delivered in a separate desktop housing. They provide manual current setting or automatic current adjustment and a timer function.

PLC Controller

Are used for high sophisticated software controlled test procedures as master-slave operation, data storage and test protocol generation, programming of test cycles, internet access and integration of the test set in a company network.