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Parallel Resonant Test Systems

THE ADVANCED SOLUTION FOR
HIGH VOLTAGE AC TESTING

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Parallel Resonant Test Systems

Application

Parallel resonant test systems are used as high voltage source for dielectric testing of medium voltage components with high capacity such as

- Generators
- Power Cables
- Power Capacitors

They can be used for factory or on-site testing, potential tests, C-tanδ-measurements and partial discharge measurements as well.

Principle of Operation

agea-kull resonant test sets consists of a high voltage transformer and a high voltage compensating reactor arrangement in parallel connection.
The fixed reactors with taps compensate most of the capacitive load current.
Therefore the required input power is low.

A tap changer allows an optimised and easy to handle adaptation of the compensating power to the actual test object.

Benefits

The user of *agea-kull* parallel resonant test sets with tapped compensation benefits from following advantages:

- input power approx. 10% of output power only
- low weight (approx. 5 kg/kVA only)
- fixed ratio between output voltage and regulated voltage; no unintended over-voltages due to voltage resonance!
- no mechanical construction for core movement, therefore low noise level, high reliability and lifetime
- no base load required, therefore low demand of space
- testing of non capacitive loads with reduced power possible

Design of Components

High Voltage Transformer
A small high voltage transformer excites the parallel resonant circuit. The transformer is oil insulated and built-in a steel tank

Compensating Reactors
Depending on the application, the oil insulated reactor coils are built-in a separate housing or - as compact test equipment – together with the high voltage transformer and a compensating tap changer in a common steel tank.
Series-/parallel-connection and tapping allows a high number of compensating steps.

Regulating Transformer
An oil insulated column type regulating transformer is used to adjust the test voltage.
It is equipped with special *agea-kull* designed brass current collectors with nearly no abrasion.

Control Unit
Either robust relay based control units or modern computer control units can be delivered.
The latter provides the possibility of

- Automatic sequence testing
- Data transfer to host computers
- Automatic test protocol generation
- Setting of high voltage trips

Base Frame and Transport Housing
For on-site service, all equipment can be mounted on a common base frame. Transport housings protect the sensitive top part of the equipment

Reliability

agea-kull manufactures parallel resonant test sets for more than 30 years. They are in service all over the world and mainly used for on-site testing of generators.
Even most of the elder systems are still in use and prove the high quality and the reliability of *agea-kull* test equipment.

System Data

Nominal Voltage kV	Tap-Voltage kV	Nominal Power kVA	Input Power kVA	Dimensions * (l x w x h) m	Weight * kg
30	-	240	50	2.4x1.0x1.6	1800
30	-	330	50	2.4x1.0x1.8	1800
30	-	530	50	2.3x1.3x1.9	2700
30	-	850	80	2.3x1.3x2.0	3800
40	-	940	90	2.5x1.5x1.8	3800
50	-	330	50	2.4x1.0x1.8	1800
50	-	640	100	2.7x1.2x1.8	2700
50	-	1000	100	2.6x1.5x2.1	4000
50	-	1800	200	3.0x1.6x2.8	5000
60	-	250	50	2.0x1.0x1.6	2100
60	30	620	75	2.7x1.4x1.8	3000
60	30	940	90	3.0x1.5x2.0	4200
60	-	1200	150	2.7x1.6x2.0	4100
72	36	940	90	3.1x1.6x2.1	4600

* Subject to change; valid for equipment mounted on a common base frame