

Frequency Variable Series Resonant Test Systems for Medium Voltage Applications



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

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Series Resonant Test Sets for Medium Voltage Applications

Application

Frequency variable series resonant test systems are mainly used for on-site dielectric and diagnosis tests of capacitive medium voltage equipment as:

- Switchgears
- Capacitors
- Power Cables
- Generators

agea-kull can provide resonant test systems with modular cylinder type reactors or with tank types. Both are especially designed for the requirements of on-site testing, but the cylinder types are of lower weight and provide the possibility of series and parallel connection for an optimised adaptation of the system to the load capacitance. This enables testing of different kind of test objects with the same equipment.

Cable Testing

In difference to other on-site test techniques as 0,1Hz or DC, resonant test sets generate a voltage stress for the insulation similar to the service condition. This gives the test result more evidence and is nowadays the preferred on-site test method.

Switchgear-Testing

The systems cover a wide load range and a suitable selection of the test frequency allows testing with installed instrument transformers or cable connections.

Generator and Capacitor Testing

The test sets provide a wide load range for on-site testing of high capacitive test objects.

Partial Discharge Measurements

PD measurements with conventional or non-conventional methods are possible if a suitable expert PD measuring system is used.

Tailormade Solutions

agea-kull designs and builds test sets tailor made to the requirements of the customers. The following list represents therefore only an excerpt of the manufacturing range.

Typical High Voltage Reactors

Re-actor	Type	Voltage kV	Current A	On-Duty min	Inductance H	Frequency Range Hz	Load Range nF	Diameter x Height mm	Weight kg
Cylinder Type DSH	DSH 04	25	1.2	10	66	50-250	6-153	Ø300x485	50
	DSH 03	50	1.2	10	135	50-250	3-75	Ø325x535	80
	DSH 02	40	3.2	10	40	50-250	7-253	Ø450x505	120
	DSH 01	40	4.0	35	32	50-250	9-317	Ø570x655	270
	DSH 0	60	6.4	10	50	30-250	8-563	Ø705x795	400
Cylinder Type DEO	DEO11-30	30	0.4	cont.	250	50-250	2-41	Ø560x620	150
	DEO60-50	50	1.2	cont.	64	100-250	6-40	Ø800x820	350
	DEO45-25	25	12	5	6.6	50-250	61-1540	Ø800x820	370
Tank Type DEO	DEO95-25	25	3.8	cont.	30	35-250	14-690	900x850x1200	750
	DEO120-40	40	3.0	cont.	60	35-250	7-345	900x850x1400	900
	DEO350-100	100	3.5	cont.	127	50-250	3-800	1000x1100x2000	1500

Design of Components

Reactor Coils

Three different types of reactors are available:

DSH-Type Reactors

This cylinder type reactor works with an open magnetic circuit and has a very good relation between testing power and weight. It is therefore our proposed on-site solution.

DEO Cylinder Type Reactors

Have a closed iron core with divided air-gaps and low magnetic stray fields.

Tank Type Reactors

For applications with dead tank requirements. They can be equipped either with bushings or MV cable sockets and are very suitable for being fixed installed on vehicles or in containers.

Exciter Transformer

The transformers are adapted to the requirements of the test set. They transform the output voltage of the power source to the voltage level, necessary to excite the resonant circuit.

Power Source

A power source with adjustable output voltage and frequency is required to excite the test circuit. Depending on the application and the power requirements, different solutions are possible:

On-Site Testers

Especially the smaller DSH reactors (DSH03 and DSH04) can be operated with standard on-site testers of different manufacturers. If you already own a frequency variable tester, please contact us to check if it can be used to excite a resonant circuit.

Frequency Converters

agea-kull can deliver converters up to a power of 150kVA. They contain the measuring and control PLC and enable manual and automatic testing.