



FABRYKA TRANSFORMATORÓW w Żychlinie

Spółka z ograniczoną odpowiedzialnością

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ISO 9001:2000
ISO 14001:2004
PN-N-18001:2004

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DRY-TYPE ARC SUPPRESSION COILS **(WITH RESIN-ROVING INSULATION)**

Applications

Arc-suppression coils are designed for compensation of ground fault current in power network and are installed in power substations between ground and, in the case of star connection, the neutral point of power transformer or, in the case of delta connection, the neutral point of earthing transformer. The 1U terminal of operating winding should be connected with the neutral point terminal 1N of power or earthing transformer, and the 1N terminal of suppressing coil should be connected to earth. The additional winding terminals are located on the cover and marked with 2U - 2N respectively. The additional winding is used for forcing of current active component for selective operation of protecting devices. In the condition of short-circuit between phase line and ground the compensating current flows through the arc suppressing coil. The current-voltage characteristics of coils is very close to a straight line; this is very important in operation. On the cover the bushings of current transformer S1 – S2 are also located.

Operating conditions

The arc suppression coils in standard version are designed for operation in the conditions of moderate climate.

Maximum installation height for the transformer: 1000 m a.s.l.

Operating place: Depending on the protection level of IP-00 ÷ IP-54: Open space or the room with sufficient ventilation; atmosphere free of dust and chemically active or explosive gases.

Ambient temperature range: -25°C up to +40°C (248°K up to 313°K), average annual temperature not exceeding +20°C (293°K).

Rated frequency: 50 Hz

Current regulation and operating time values are specified in the table below:

Position of tap changer	Compensating current expressed in % of rated current	Operating time, hours
1	100	2
2	87.5	4
3	75	8
4	62.5	continuous operation
5	50	continuous operation

NOTE:

Coils in special versions meeting other requirements are available on request.

Design

<i>Reactor cores:</i>	Made of cold-rolled transformer plates covered with inorganic insulating material.
<i>Reactor windings:</i>	The windings of reactors are made of electrolytic copper. The windings are wound from round wire with enamel insulation or shaped wire with paper insulation. Between individual windings the channels are provided that ensure the necessary oil circulation and suitable cooling. The windings are pressed by clamping bolts which eliminate vibrations during operation. Both the design and fixing structure of windings ensure very good dielectric strength and high resistance against lightning surges and very good short-circuit strength. To avoid overvoltages the earthing diagram for all structural elements of suppressing coils was drawn up.
<i>Regulation.</i>	The winding is equipped with taps for regulation of current. The values of operating parameters (selecting of desired taps) can be changed after de-energizing of the coil.
<i>Covers:</i>	Made of powder painting steel coated by the one of RAL color. It is a twisted structure which provides adequate mechanical strength. Panels or filters with fans are used to remove heat (with certain degree of IP protection). The housing has a chassis on adjustable wheels on longitudinal and transverse direction of drive.

Main specifications of arc suppression coils:

- Frequency: 50 Hz
- Regulation of current in 5 steps
- Voltage: 500 V \pm 10%
- Additional winding dimensioned for the current of 500 A
- Operating time: 10 seconds

International standards and requirements:

PN-EN 60076-6	- Power transformers. Reactors
PN-EN 60076-2	- Power transformers. Temperature rise
PN-EN 60076-11	- Power transformers. Dry-type transformers
PN-EN 60076-1	- Power transformers. General requirements
PN-EN 60529	- Degrees of protection provided by enclosures (IP code)

Specifications:

Item	Type	Compensating power	System voltage	Voltage	Compensating current
		kVA	V	V	A
1.	DGZ 273/15,75	273	15750	9093	30-15
2.	DGZ 364/15,75	364	15750	9093	40-20
3.	DGZ 546/15,75	546	15750	9093	60-30
4.	DGZ 727/15,75	727	15750	9093	80-40
5.	DGZ 1091/15,75	1091	15750	9093	120-60
6.	DGZ 1637/15,75	1637	15750	9093	180-90
7.	DGZ 2180/15,75	2180	15750	9093	240-120
8.	DGZ 364/21	364	21000	12124	30-15
9.	DGZ 485/21	485	21000	12124	40-20
10.	DGZ 727/21	727	21000	12124	60-30
11.	DGZ 970/21	970	21000	12124	80-40
12.	DGZ 1455/21	1455	21000	12124	120-60
13.	DGZ 1940/21	1940	21000	12124	160-80

NOTE:

- The suppressing coil can be made for the system voltage complying with the standard:

$U_N=3650V$ for system voltage of 6.3kV;

$U_N=6060V$ for system voltage of 10kV;

$U_N=9100V$ for system voltage of 15.75kV;

$U_N=12125V$ for system voltage of 21kV;

other system voltages (from the range of 1-37kV).

- It is also possible to built the suppression coils equipped with:

- enclosure with protection degree from IP-20 to IP-54;

- accessories (PT temperature sensors, surge arresters, transformer terminals, anti-vibration pads and so on).

The Customer will receive dimensional drawings and dimensions of units after contacting the factory and specifying the parameters of arc suppression coil.

NOTE:

The manufacturer reserves the right to change specifications presented in the catalogue and resulting from technical progress.