FABRYKA TRANSFORMATORÓW
w Żychlinie

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

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OIL IMMERSED ARC-SUPPRESSING REACTORS

EN 60289

100-2000 kVAr
6-20 kV

Catalogue Sheet No. **69**

Application

Arc suppressing reactors are applied in power networks for compensating earthing current and are connected between neutral point of a star connected power transformer or neutral point of delta connected earthing transformer and earth.
Terminal A1 of reactor should be connected to neutral point N1 of power or earthing transformer and terminal N1 of reactor should be connected to earth.
Auxiliary winding terminals are led on reactor tank cover and designated 2A - 2N. Auxiliary winding is used for forcing active current component in order to enable selective protection operation.
When failure phase to earth occurs reactor conducts compensating current.
Reactors have semi-linear current vs. voltage characteristics which has a substantial role in exploitation.
There are current transformer terminals designated k-l led out on reactor tank cover.

Operational condition

Transformers in basic execution are suitable to operate in moderate climates.
They can operate outdoors in location of altitudes up to 1,000 metres above sea level or indoors with sufficient ventilation, where ambient air is free from dust and chemically active or explosive gases.
Ambient temperature range is from -25°C to +40°C (248°K to 313°K), annual average temperature should not exceed +20°C (293°K).
The Manufacturer offers also transformers subject to client requirements, for instance for operation in tropic climate.
Operational frequency 50 Hz.
Current regulation and loading conditions are shown in the Table below:

Tap Changer Position	Compensating current as % of rated current	Permissible operational period in hours
1	100	2
2	87.5	4
3	75	8
4	62.5	continuous operation
5	50	continuous operation

General description

Reactor core is manufactured from cold-rolled electromagnetic steel sheet covered with non-organic insulation layer. Sheets in core are fixed by means of pins placed in central part of yoke sheets which provides even stress distribution in both core columns.

Windings are made of electrolytic copper and used conductors are round with enamel insulation or profile insulated by means of insulating paper. There are oil ducts among winding which provide oil circulation and proper cooling. Winding fastening is made by means of screw pins which prevents winding from vibration during operation. Windings fixing and design ensure very high dielectric and arc insulation withstand and short-circuit capacity. In order to avoid overvoltage all constructional parts of reactors are designed according to earthing diagram.

Transformer main tank is made of steel and its welded construction is reinforced by means of supports increasing rigidity and proper mechanical withstand. Cooling of transformers is

performed by means of steel sheet radiators fixed in position to the main tank wall. Transformer main tank has undercarriage with bi-directional wheels.

Accessories

- 2 porcelain bushings of reactor winding
- 2 porcelain bushings of reactor auxiliary winding
- 2 porcelain bushings of current transformer
- Maximum thermometer
- Buchholza relay
- Current transformer, secondary current 5A
- Conservator with Oil level indicator
- Earthing bolt
- Oil draining and filling valves
- Nominal plates

Accessories of each transformer are in compliance with Dimensional Drawing.

Reference Standards and International Provisions

EN 60289 - Reactors. (IEC Publication No. 289)
EN 60076-1 - Power Transformers. (IEC Publication No. 76.1)

Technical specifications of reactor auxiliary winding:

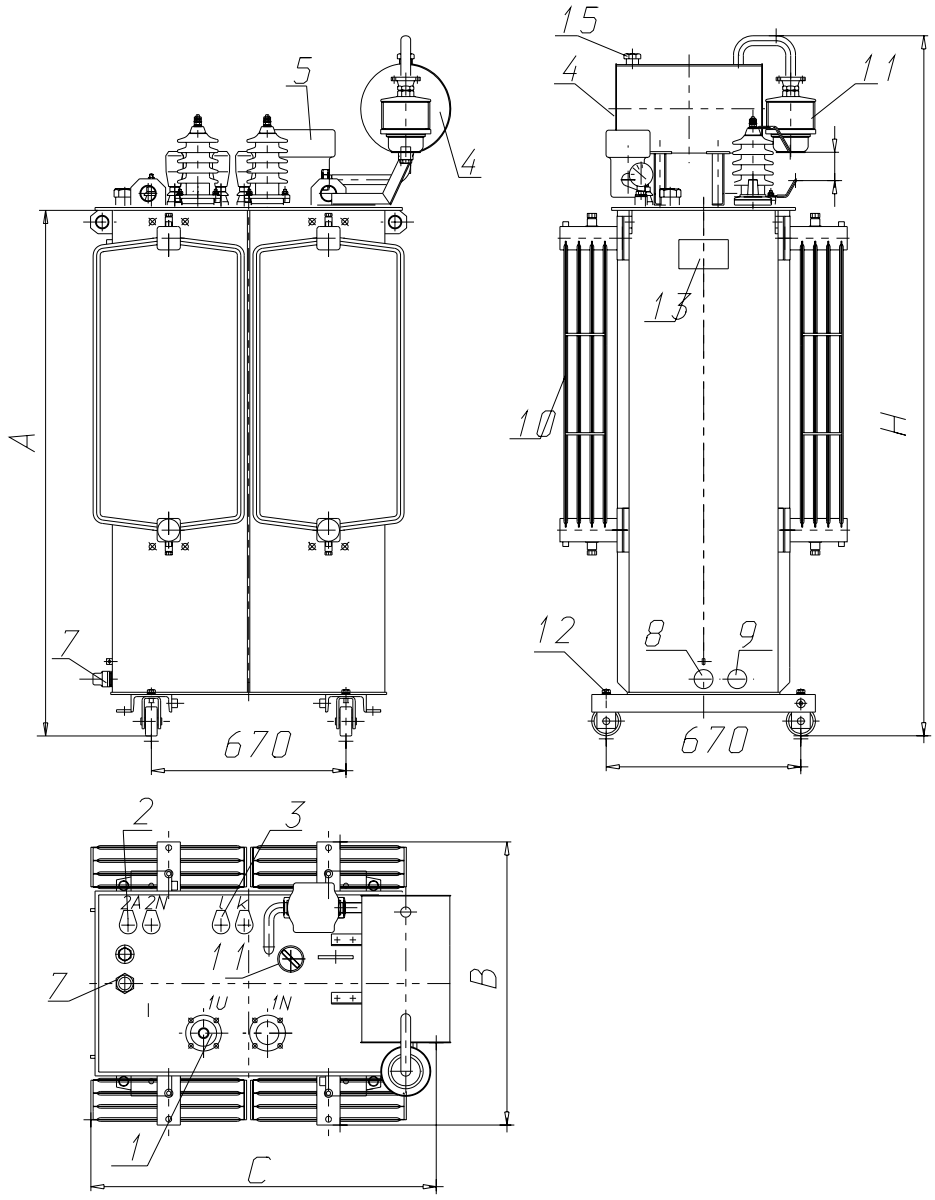
1. Frequency - 50 Hz
2. No. of current regulation steps - 5
3. Voltage - 500 V ±10%
4. Secondary winding rated current - 500 A
5. Permissible operation interval - 10 s

Other design execution to be consulted with the Manufacturer.

Factory provides guarantee and post-guarantee service, overhauls and repairs of its products.

The Manufacturer reserves right to change catalogue technical data in the course of product modernisation.

Dimensional Drawing



1. *Reactor winding bushings*
2. *Auxiliary winding bushing*
3. *Current transformer bushing*
4. *Conservator*
5. *Buchholza Relay, BG 25 type*
6. *Oil Level Indicator*
7. *R 3/4” Thermometer Socket*
8. *Oil Draining Valve*
9. *Oil Test Valve*
10. *Radiators*
11. *Tap Changer Manual Drive*
12. *Earthing Bolt*
13. *Nominal Plate*

Technical Data and Dimensions

No.	Type	Compen. Power	System Voltage	Reactor Voltage	Compen. Current	A Height up to the cover	B Width	C Length	H Height	x	Mass		
											Total	Removable Part	Oil
		kVAr	V	V	A	mm	mm	mm	mm	mm	kg	kg	kg
1	DGOc 110/6	109	6300	3637	30-15	1080	900	820	1535	245	800	450	200
2	DGOc 145/6	145	6300	3637	40-20	1145	900	820	1600	245	865	485	230
3	DGOc 220/6	218	6300	3637	60-30	1295	980	820	1750	245	1020	575	260
4	DGOc 290/6	290	6300	3637	80-40	1295	980	820	1750	245	1020	575	260
5	DGOc 435/6	436	6300	3637	120-60	1345	845	875	1800	245	1240	795	265
6	DGOc 180/10	182	10500	6062	30-15	1295	980	820	1750	245	1020	575	260
7	DGOc 240/10	242	10500	6062	40-20	1295	980	820	1750	245	1020	575	260
8	DGOc 365/10	364	10500	6062	60-30	1345	845	875	1800	245	1240	795	265
9	DGOc 485/10	485	10500	6062	80-40	1475	845	875	1930	245	1360	860	282
10	DGOc 730/10	727	10500	6062	120-60	1425	855	950	1900	245	1540	1070	300
11	DGOc 970/10	970	10500	6062	160-80	1375	865	1060	1850	245	1860	1310	395
12	DGOc 275/15	273	15750	9093	30-15	1295	985	820	1750	310	1010	560	260
13	DGOc 365/15	364	15750	9093	40-20	1345	845	875	1820	310	1240	795	265
14	DGOc 545/15	546	15750	9093	60-30	1445	845	875	1900	310	1300	850	270
15	DGOc 730/15	727	15750	9093	80-40	1425	850	945	1900	310	1540	1070	300
16	DGOc 1090/15	1091	15750	9093	120-60	1595	825	1075	2065	310	1900	1250	395
17	DGOc 1640/15	1637	15750	9093	180-90	1625	1015	1140	2130	310	2425	1620	525
18	DGOc 365/20	364	21000	12124	30-15	1345	845	875	1820	310	1240	795	265
19	DGOc 485/20	485	21000	12124	40-20	1475	845	875	1930	310	1360	860	280
20	DGOc 730/20	727	21000	12124	60-30	1425	850	945	1900	310	1540	1070	300
21	DGOc 970/20	970	21000	12124	80-40	1595	825	1075	2065	310	1900	1250	395
22	DGOc 1455/20	1455	21000	12124	120-60	1730	995	1190	2235	310	2400	1620	435
23	DGOc 1940/20	1940	21000	12124	160-80	1705	1035	1160	2210	310	2485	1710	525
24	DGOc 730/30	727	30000	17320	40-20	2055	1165	1330	2635	570	3700	2350	770