

THE MAIN OBJECTIVE IN ENERGY SUPPLY IS TO ENSURE UNINTERRUPTED AND LONG-TERM OPERATION OF TRANSFORMERS

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ABSTRACT

This article discusses the importance of transformers in the power supply, as well as the issues of timely maintenance of transformers, which can be achieved using special equipment.

Keywords: hydraulics, hydraulic systems, fluids, machine, lubricating oils.

One of the most important advantages of alternating current over direct current is the ease and simplicity with which alternating current of one voltage can be converted into alternating current of another voltage. This is achieved by means of a simple and ingenious device - a transformer.

Transformers are the most common devices in modern electrical engineering. High power transformers form the basis of power transmission systems from power plants to power lines

They increase the AC voltage, which is necessary for the economical transmission of electricity over long distances. In places where energy is distributed between consumers, transformers are used that lower the voltage to the values required for consumers.

A transformer is a static electromagnetic device having two or more windings coupled inductively and designed to convert one or more alternating current systems into one or more other alternating current systems by means of electromagnetic induction.

Oil transformers are designed to change the energy of alternating current in the power grids of power systems, in lighting networks or powering electrical equipment.

They are used to create complete transformer substations. Their mode of operation is characterized by an alternating current frequency of 50 Hz and very small deviations of the primary and secondary voltages from the nominal values.

When visually inspecting a power transformer installed and in operation, pay attention to:

1. No oil leakage from under the insulators, transformer cover, expander, drain cock.
2. Condition of bushings (no cracks, chips, overlaps).
3. The condition of the contact connections (lack of heating, when heated, whitening of the studs, nuts appears).
4. No dust or dirt on the transformer, especially on the I/O and N/O insulators.
5. The presence of oil in the expander.
6. No extraneous noise

Тип трансформатора	Мощность, кВА	Схема и группа соединения обмоток	Габаритные размеры, мм			Масса полная (вес), кг
			L (длина)	B (ширина)	H (высота)	
ТМГ-16/10-У1(ХЛ1)	16	У/Ун-0, У/Зн-11	800	520	890	230
ТМГ-25/10-У1(ХЛ1)	25	У/Ун-0, У/Зн-11, Д/Ун-11	800	520	930	240
ТМГСУ-25/10-У1	25	У/Ун-0	900	530	930	280
ТМГ-40/10-У1(ХЛ1)	40	У/Ун-0, У/Зн-11, Д/Ун-11	840	560	1000	300
ТМГСУ-40/10-У1	40	У/Ун-0	900	560	1000	370
ТМГ-63/10-У1(ХЛ1)	63	У/Ун-0, У/Зн-11, Д/Ун-11	950	730	1020	420
ТМГСУ-63/10-У1	63	У/Ун-0	950	730	1020	420
ТМГ11-100/10-У1(ХЛ1)	100	У/Ун-0, У/Зн-11, Д/Ун-11	935	730	1060	490
ТМГСУ11-100/10-У1	100	У/Ун-0	960	710	1100	500
ТМГ11-160/10-У1(ХЛ1)	160	У/Ун-0, У/Зн-11, Д/Ун-11	1020	755	1185	670
ТМГСУ11-160/10-У1	160	У/Ун-0	1060	725	1200	660
ТМГ11-250/10-У1(ХЛ1)	250	У/Ун-0, У/Зн-11, Д/Ун-11	1140	820	1270	920
ТМГ12-250/10-У1(ХЛ1)	250	У/Ун-0; Д/Ун-11	1170	790	1525	1000
ТМГСУ11-250/10-У1	250	У/Ун-0	1170	840	1270	920
ТМГ11-400/10-У1(ХЛ1)	400	У/Ун-0, У/Зн-11, Д/Ун-11	1350, y/z-1330	855	1415, y/z-1635	1255, y/z-1370
ТМГ12-400/10-У1(ХЛ1)	400	У/Ун-0; Д/Ун-11	1330	850	1665	1370

The most important task of the power industry is to maintain the normal and uninterrupted operation of equipment, including power transformers, which can only be ensured if it is properly operated.

The operation of the transformer in normal temperature conditions is ensured, first of all, by the cooling system provided by the design. Accordingly, the normal operation of the power transformer is possible only if the cooling system is in good working order and efficient.

If the transformer is installed in a closed chamber, then in addition to the standard cooling system, effective ventilation in the room must be provided. For small power transformers, as a rule, they are limited to natural ventilation. Depending on local conditions, the characteristics of the operation of the power transformer and its power, the presence of forced supply and exhaust ventilation may be provided. The cooling efficiency of the transformer is determined by the temperature difference between the supply and exhaust air - it should not exceed 15 degrees.

Long-term overload of transformers above the permissible norms adversely affects the life of the transformer. Therefore, in case of a power shortage, the transformer must be replaced with a more powerful one that will meet the current needs of consumers.

To ensure uninterrupted and continuous operation, the operation of transformers includes the following activities:

- conducting periodic inspections of equipment;
- carrying out scheduled current and major repairs;
- troubleshooting after emergencies.

Maintenance of transformers is carried out during the entire period of their operation to maintain the operable state of electrical equipment, monitor it and identify visible faults. Scheduled maintenance of transformers includes technical inspection and preventive control

To ensure the above activities, we need special technical units for the full maintenance of low voltage transformers

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