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Kulinich I., Lukashevich K.

Transformer Substations

Belarusian National Technical University
Minsk, Belarus

An electrical transformer is a device used to change the magnitude of an alternating current voltage at the same frequency, as well as for galvanic isolation of devices. The transformer consists of a core (metal frame, soprano made of many plates) and two insulated windings wound around it. When an alternating current is applied to one of the windings, a magnetic field is generated, which causes an alternating voltage to appear on the secondary winding. Often part of the secondary winding is part of the primary or vice versa. This type of transformer is called autotransformer [1].

Power transformers are widely used in the field of power

supply, which are part of transformer substations. A transformer substation is a multifunctional installation consisting of switchgears, a transformer, complete units and other auxiliary equipment, which performs the role of converting voltage from 10 kV and further transferring 380 volts to household networks [2]. Substations 10 for 0.4 kV

carry out the last stage of electricity conversion: from these substations, electricity goes directly to the consumer - to settlements and industrial enterprises. Let's consider the most common:

Mast substations are the most common in the power supply of individual settlements, small industrial facilities and other consumers in areas with a temperate climate from - 45 °

C to + 40 ° C. They have a wide range of models for capacities from 25 kVA to 100 kVA [1]. It gained its popularity for its compact design, high efficiency and the uselessness of installing an additional fence to protect against unauthorized access to conductive elements.

Pole substations are optimal for power supply of small

settlements, agricultural consumers, garden cooperatives, oil and gas fields, industrial facilities located in regions with a temperate climate. Equipped with additional equipment for street lighting control. The power of the power transformer is from 25 kVA to 63 kVA. This type of substation is not used in places of high vibration load and at explosive objects [3].

Kiosk substations are used to supply power to small settlements, railways and oil and gas fields. Kiosk substations, unlike others, are mobile. To install them, you only need a solid platform, protected from water penetration. The power of the variety of these substations is from 63 to VA to 1000 kVA [4].

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