This article discusses the possibility of self-fluxing nickel-based alloy for the friction pairs operating under rolling with sliding. The aim of research was to determine the kinetics of changes in the physical and mechanical, anti-wear and anti-friction properties of the sprayed coating of self-fluxing powder PG-AN9 among transmission oil. The method of assessment of tribotechnical properties of the coating is proposed in the start-up mode at step increase in load of the sprayed coating of self-fluxing powder PG-AN9 among transmissions. The results show that the self-fluxing coatings, wear, anti-friction properties, micro-hardness, non-stationary loading. 

**Keywords:** self-fluxing coatings, wear, anti-friction properties, micro-hardness, non-stationary loading.

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**MECHANICAL ENGINEERING AND MACHINE BUILDING**

**ANALYSIS OF TRIBOTECHNICAL CHARACTERISTICS OF SELF-FLUXING COATING UNDER ROLLING AND SLIDING AT NON-STATIONARY LOADING**

This article discusses the impact of operational, environmental and economic factors on the drive choice to equip the gas pumping units. The main aim of this study is to analyze the factors influencing the choice of drive type, show the advantages of EDGPU, to determine the necessary conditions for their application. Comparison of frequency-controlled, hydrodynamic and mechatronic electric driven units with turbine driven is done based on the indicators of availability and the ability to implement different load regimes, efficiency, technological readiness and service life of equipment, ease of placement and need for production areas, requirements to energy supply and quality of gas quality, impact on the environment. Analysis on the basis of economic criteria includes consideration of the required investment costs, operating costs, including the costs of maintenance and repairs, the life cycle cost. Research results can be used for design of new and modernization of existing compressor stations of main gas pipelines, as well as the choice of tribotechnical compressors in various industries.

**Keywords:** gas turbine, electric motor, compressor, variable drive, operational, environmental and economic factors.

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**PRESSURE INCREASING DEGREE CALCULATION OF AIR-JET ENGINE’S AXIAL COMRESSORS**

It is well-known, that all the fundamental foundations of the modern theory of air-jet engines (AJE) are in full wrong, that generated wrong opinion that in zone H-B 2 turbine (engine) energy is not supplied to the gas flow and gas flow pressure up to maximum Π max in zone B 2-K is provided only with diffuser (widen) canals between the part of gas flow kinetic energy, which is stored in zone H-B 2, not supplied to the gas flow and gas flow pressure up to maximum Π max in zone B 2-K is provided only with diffuser (widen) canals between the part of gas flow kinetic energy, which is stored in zone H-B 2, not supplied to the gas flow and gas flow pressure up to maximum Π max in zone B 2-K is provided only with diffuser (widen) canals between the part of gas flow kinetic energy, which is stored in zone H-B 2, not supplied to the gas flow and gas flow pressure up to maximum Π max in zone B 2-K is provided only with diffuser (widen) canals between the part of gas flow kinetic energy, which is stored in zone H-B 2, not supplied to the gas flow and gas flow pressure up to maximum Π max in zone B 2-K is provided only with diffuser (widen) canals between the part of gas flow kinetic energy, which is stored in zone H-B 2, not supplied to the gas flow and gas flow pressure up to maximum Π max in zone B 2-K is provided only with diffuser (widen) canals between the part of gas flow kinetic energy, which is stored in zone H-B 2, not supplied to the gas flow and gas flow pressure up to maximum Π max in zone B 2-K is provided only with diffuser (widen) canals between the part of gas flow kinetic energy, which is stored in zone H-B 2, not supplied to the gas flow and gas flow pressure up to maximum Π max in zone B 2-K is provided only with diffuser (widen) canals between the part of gas flow kinetic energy, which is stored in zone H-B
which is an external work, which turbine (engine) provides to compressors front the face, is generated into potential pressure energy by means gas flow axial speed decrease from step to step while gas flow braking is provided by pressure leaps, which are generated only on the backside of the blades of WW, and beforethe resistant of the last, flow braking generates inertial force, which is directed by the flow and pressure the gas flow to maximum HP, while that static pressure of gas flow on the backs of the blowing profile blades is much more then the same on trough of the blades, which creates an additional resistive moment for rotor kinetic energy LPC, MPC, HPC keeping.

**Keywords:** kinetic and potential energy, inertial force, axial compressor.

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The results indicate reduction of indexes SAIDI, SAIFI and ENS, for the distribution networks with the voltage 6–10 kV: 
- without reserve 10–30 %, 
- with manual reserve 10–80 %, 
- with automatic reserve 50–70 %.

Thus the automatic disconnectors can be used to improve integral indexes of reliability SAIDI, SAIFI and ENS of distribution networks with the voltage 6–10 kV.

**Keywords**: automatic disconnectors, sectionalization, indexes of reliability.

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**STUDY OF CIRCUIT NEGATRONS PROPERTIES, IMPLEMENTED ON OPERATIONAL AMPLIFIERS**

The using of negative impedance circuits expands the set of basic electrical circuit components by three additional components: a negative resistor, a negative capacitor and a negative inductor, respectively, R-, C-, L-negatrons. The study of the properties and parameters of the circuit negatrons has been performed from the standpoint of theoretical foundations of classical Electrical Engineering; their definitions and component equations have been presented; also operations and transitions in alternating current circuits have been discussed. The possibility of direct synthesis R-, C-, L-negatrons, which is based on operational amplifier with feedback circuits on both inputs, has been studied and the list of different negative impedance converters implementations has been presented with quantitative evaluation of their parameters. Because of input signal's amplitude and frequency band effects on the negatrons' working stability, the investigations of the permissible excitation signals deviations for negative impedance op-amp circuits were carried out and results were obtained in numerical expression. The boundaries of the operating range of currents and voltages are determined by the value of electromotive force of op-amp supply, parameters of feedback elements and signal frequency excitation. Simulation results using MultiSim software have proved the validity of the considered limitations on the operating range of input signals and their frequency for different types of negative impedance circuits. Therefore obtained equations can be considered as compulsory initial relations for operational region analysis of specific op-amp negatrons and for creating recommendations about input signal values range.

**Keywords**: negative resistor, negative capacitor, negative inductor, negative impedance converter, negative impedance circuit.

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