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Application of Complementary Machine-Complex

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Abstract: The complementary machines "RIFATIMI" represent the technological revolution both in the field of energy efficiency and effectiveness and, the world necessarily needs (the saving of material and energy). The sciences of developed technology for rotating magnetic fields are the basis for the review of all types of rotating electrical machines. An appropriation of science to the rotating magnetic fields means breaking the ice in the review and use of synchronous and asynchronous three-phase machines. Since the windings of three-phase electromotive were connected in Star or Triangular during their start up and action there were created specific circumstances that have caused quasi-stationary operation.
Usually, it's assumed that between the irons there is an operating sinusoidal distribution of flux density. There have been continuous requests from organizations with permanent character, including the research trends and explorations in the field of magnetic field structure, both in time and space and was found as a link between this structure and the physical phenomena that on the basis of the cases they are determinant of this structure.
From temporal and spatial perspective here is also enabled a complex variation of the combination of connections of star with triangle.
By this definition, in a concise manner is given an agreement to distribution of ampere conductors between the linear loads of Ax in a harmonic way which creates harmonic induction of Bdm, while the machine's operation reaches a stationary state.
Taking into consideration the new circumstances being harmonized in space and time of the rotating magnetic fields in complex complementary electric machines must be considered during their construction, exploitation and directing.
At the same time, all components must be adapted with their harmonized values to serve as a complement of the complementary operator.

Keywords: Rifatimi, Ampere conductors, new connection of winding, Operator "g", High harmonics

1. INTRODUCTION

The distribution of ampere conductors in three-phase machines coordinated by momentarily current complementary complex not only has been difficult but that was considered nearly as impossible how they actually interact. Pulsation of the rotating magnetic fields, according to law with one coil with the pulsating field will change pulsating magnetic induction at various points of space for the coil circuit.

Winding connections in Star or Triangle are noted that components will create the classic three-phase system of inductions and create windings connected to Y according to Leblanc's theorem, and there will be formed amounts of direct co-linear components and amounts of inverse components formed from a closed triangle that creates negative effects and simultaneously weaken labour regime of the machine's operation.

Therefore, as a result of this is created the possibility to exploit the complementary complex machine which completely eliminates the negative components of the weak regime. (Bosanac, 1973)

Solving the problem is to link the winding (classic machines are either star or triangles in unphases of 120 degrees), while complex machines are the best two synchronized windings themselves between in unphases from 90 degrees.

Modern technologies with great force up to 500kW have needs for efficiency and energy efficiency for all electro- motors with pole of 2p, 4p, 6p, 8p and 12p, with voltage from 400V and 600V. Technology innovation of the special importance has also dedicated itself to a final design for the development of its engine in the future with these objectives:

- An unconventional traction drive that has no permanent magnet material,
- Has lower torque ripple and acoustic noise than that of a conventional switched reluctance motor, and

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- Maintains the low cost, simplicity, and modernization components of the weak regime. (Surutka, 1989)

2. DESCRIPTION OF COMPLEMENTARY MACHINES

Spatial and temporal reflection of the three-phase system is seen with a new look for the benefit of the position of the resultant vector of induction, assuming the linear part of the magnetization curve when induction is being changed by harmonic law in fig 1.

The main contributions of the complementary machines between the phases of R, S, T stand within the characteristic circle forming a star of 12 wings, which is fascinating for ωt = 0 that all contributions in this case 3 + j3 stay within a characteristic circle, which visually represent the two special non-phased systems of 90°, so there follows the innovative scientific conclusion of connected windings between star or triangles that are formulated as new symbols:

$$Y \vee j\Delta = \text{Δ}$$

$$Y \wedge j\Delta = \text{⅄} \qquad (1)$$

New complementary operator ‘‘g’’ in the field of rotating magnetic fields raises the basic concept in complex complementary machines to new technologies in optimizing the basic components in the generation of electricity.

Impact of new circumstances in high harmonics represents nominal values about exploitation of coefficient compared to characteristic sizes that are utilized for the comparison of different electromotive as orientation values: s, η, or cos φ during nominal load. Factor of apparent consumed power, current and apparent rotary power present the joint forces of electromotive during an unloaded operation.

Continued demand for electricity, the rapid development of modern technologies, the challenge of global warming and the possibilities of the new generation are the driving factor associated with energy generation in the complementary field, in step with efficiency of the Innovative Management Technology, which now will bring efficiency to new departments of heavy industries enabling the world that for the same electromotive to use the new complex windings of GJOTA. Undoubtedly, a global approach will be changed to the benefits of this technology in the electric motor of large powers up to 400kW. So, continuously the research approach will be concerned to the transformation of thermal power generation capacities in the fossil combustion of fully renewable capacity for a period of 50 years.

3. COMPLEX MAGNETIC FIELD

An electric motor’s principle of operation is based on the fact that a current-carrying conductor, when placed in a magnetic field, will has a force exerted on the conductor proportionally to the current flowing in the conductor and to the strength of the magnetic field in direction of electric currents. In alternating current motors, the windings placed in the laminated stator core produce the magnetic field (Figure 3). The aluminium bars in the laminated rotor core are the current-carrying conductors upon which the force acts. The resultant action is the rotary motion of the rotor and the shaft, which can then be coupled to various devices to be driven and produce the output. Lines of magnetic induction field B are closed lines. In order to create around the conductors on the periphery of the stator or rotor the special density of lines, respectively the designated B induction (Figure 4), those lines need to grip certain currents with magnet-motor force θ = Σ I, which is connected with the intensity of the magnetic field H.

The force F on a wire of length L carrying a current I in a magnetic field B is LB times the size of the angle between B and I, which would be 90°, if the field was uniformly vertical. The direction of F comes from the right hand rule, as shown here. The two forces shown here are equal and opposite, but they are displaced vertically, so they exert a torque. A number of different mnemonics are used to remember the direction of the force. Some use the right hand, some the left. (Tehnicka enciklpoedija, 1976) (Gjota, 1996)

Complementary machines which are now installed in Kosovo Energy Corporation are potential indicators of an innovative technology that provides the possibility of classic engine efficiency by changing the windings creating the impression of analytical mechanisms by new complementary operator of "g" complex. Through the new complementary operator "g" are being created the new possibilities of rotating magnetic fields after being discovered complementary complex machines, on which is raised basic scientific concept on new technologies in the field of rational use of electricity and in the optimization of components in the generation of electricity.

New Meaning in complementary operator has increased an understanding and ability of conclusion regarding to complex machines.

Starting from the star of 12 vings, as graphical method (Figure 5), also is being proved analytically as follows:

$$\sqrt[12]{1} = \sqrt[4]{\sqrt[3]{1}} = \sqrt[4]{a} = \sqrt[4]{e^{j\frac{2\pi}{3}}} = e^{j\frac{2\pi}{3}\frac{1}{4}} = e^{j\frac{2\pi}{12}} = e^{j\frac{\pi}{6}} = g \qquad 2)$$

When parallel components disassemble and all at the same time assemble it is obtained a butt of 4 triangles (Figure 6), which are in step with 90°, respectively, for the "j" [4]. From these findings, we can say that is applied a new relationship:

$$0+j0=0 \quad \text{and} \quad \left[\!\left[\frac{1+a+a^2}{2}\right]\!\right] + j\left[\!\left[\frac{1+a+a^2}{2}\right]\!\right] = 0 \qquad (3)$$

4. COMPARISON OF DATA

So, since 1999, in the Kosovo Power Plants are installed 23 electromotive (Table 1), with complementary windings, of all different including the tension up to 6 kV, practically proven to nowadays in high performance in promising technology.

These complementary machines in their vision have been