ISSN 2181-8622

Manufacturing technology problems

NAMANGAN MUXANDISLIK-TEXNOLOGIYA INSTITUTI

Scientific and Technical Journal Namangan Institute of Engineering and Technology

INDEX COPERNICUS INTERNATIONAL

Volume 9
Issue 2
2024

Google Scholar

Crossref doi

SLIB.UZ
Scientific library of Uzbekistan

REDUCE ENERGY CONSUMPTION BY ADJUSTING THE ELECTRODVIGATE SPEED OF THE LINTER DEVICE

OBIDOV AVAZBEK

Professor of Namangan Institute of Engineering and Technology, Namangan, Uzbekistan
Phone.: (0893) 941-7775, E-mail.: obidovavazbek66@gmail.com

SHAMSHITDINOV MAQSUDBEK

Assistant of Namangan Institute of Engineering and Technology, Namangan, Uzbekistan
Phone.: (0894) 590-8868, E-mail.: maqsud@gmail.com
Corresponding author.

MASHRABBOYEV ISLOMJON

Student of Namangan Institute of Engineering and Technology, Namangan, Uzbekistan
Phone.: (0890) 278-9939, E-mail.: mashrabboyevislomjon4@gmail.com

Abstract: This article discusses cotton fiber, obtaining secondary products from chickens, ageing the plumbing industry, machine electrodvigates used in the cotton industry, and their use. It also mentions the experience of European countries in the lintering technologies used in plumbing companies and the cultivation of cotton in foreign countries.

Keywords: electrodvigatel; lintering; cluster enterprises; mechanisms; technology; technology; plumbing companies; recipe; filter; cotton seed; frequency; rotation speed.

Introduction. In production, the speed of movement of executive bodies of machines and mechanisms, that said, different speeds of movement of executive bodies, stability of speed at set values, as well as ensuring speed changes in accordance with an optional variable task signal or a predetermined program, are ensured by means of electrical drives. The speed of the executive body can be changed using a mechanical transmission or an engine.

Using a mechanical extension, the number of mechanical extension transmissions is changed (when the number of engine cycles is constant), which is called a mechanical method of fixing. Transmission boxes, variators and electromagneticare used to perform the mechanical method. This method is used less because of its complexity, reliability and low transparency in automation of technological processes.

Methods. Modern electrical appliances use electrical appliances (as a result of engine impact). This method is characterized by the width, simplicity and ease of use in automation schemes. Therefore, in modern production machines and mechanisms, the control of the movement of executive bodies is achieved mainly through the purpose-oriented effect on the electric motor using its control system.

Speed fixing is evaluated by the following indicators:

1. *The adjustment range* is determined by the ratio of the maximum ω_{max} and minimum ω_{min} speeds at the given limit of the load on the D-motor shaft, D= $\omega_{max}/\omega_{min}$;

2. *Adjustment fluency.* It is determined by the fluid coefficient of correction, K i/i-1, which is found in the ratio of the values of the angle speeds on both sides (I and=ω i-1ω);

3. *Speed stability (stability) is* characterized by a change in the speed of the engine, the loading moment in its governor by a specified exclusion, and is determined by the biking of mechanical characteristics;

4. *The direction of speed adjustment is* determined by the location of the artificial characteristics obtained relative to natural characteristics;

5. *The economic cost of speed adjustment.* It is evaluated by comparing the cost of creating and using an automated electrical appliance and the value of the power loss in the installation.

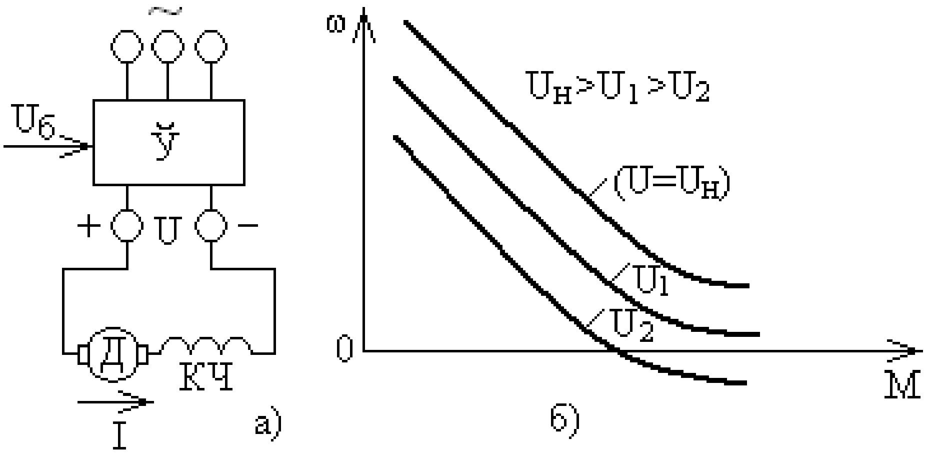
Alternating current is adjusted using speed converters and special circuit "generator-engine", "thyristor converter-engine" systems.

Adjust the speed of the engine using a voltage modifier.

By changing the speed of the engine, the adjustment scheme (a) and the mechanical characteristics (b) that correspond to different voltages are presented in figures 4-2.

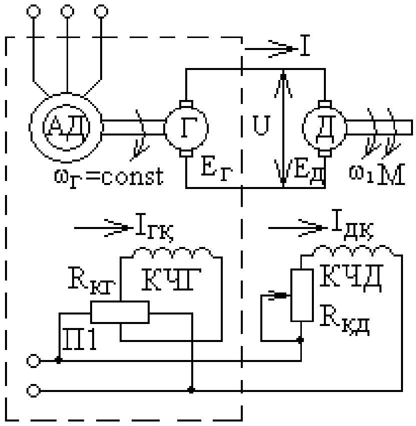
In the scheme, a modifier (U) was used to adjust the voltage. The output voltage of the modifier (U_{exit})is adjusted in accordance with the change in the control signal (U) in the input.

As the voltage decreases ω=(U-IR)/kF(I), the angle speed of UTD decreases, and the characteristics are located below the natural characteristics, in which the biking of characteristics does not change.



Figures 4-2. The adjustment scheme (a) and mechanical characteristics (b) of the sequential agitation UTD speed by changing the voltage.

“Generator-engines” system. In this system, the engine (D) is directly connected to the “yakor” of generator (G), the generator, together with its own driving engine (AD), forms an electric machine modifier (U).



Figures 4-3. Diagram of the generator-engine system.

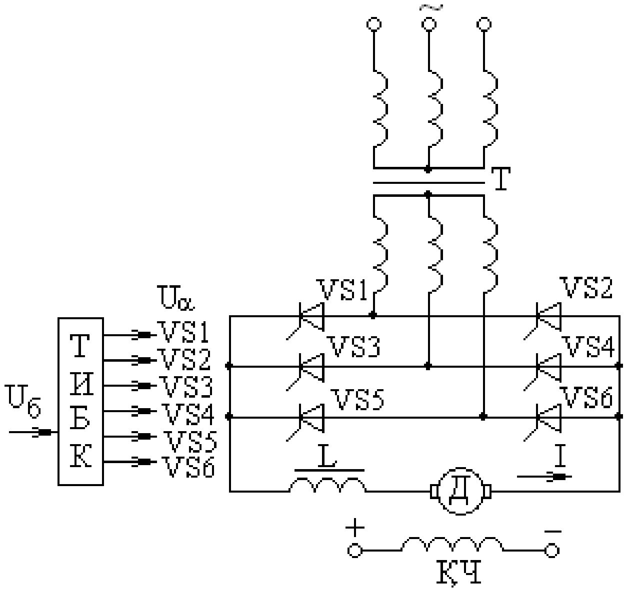
The desired speed of the engine is obtained by changing the value of the voltage given to the “yakor”. To modify the generator's EYuK (Ye_r), the generator's magnetic current is accomplished by correcting the token in the generator's trigger churn (GKCh). In this system, voltage correction can also be carried out in conjunction with the effect of UTD on the magnetic current, which ensures that the speed is adjusted in two zones.

Results and Discussions. The main advantages of the “generator-engine” system are the large diaphragm and fluidity of the engine speed correction, the high biking and linearity of characteristics, the ability to generate all operating modes (engines), including the recuperative suspension. This system has the following disadvantages: the doubling of the total power of electric cars, the low FIK, the inertia of the correction process and noise in operation.

"Tiristor Variable–Engine" system. The main type of modifiers in Z amoecony variable token electrical appliances are semiconductor static modifiers, of which thyroid modifiers are used primarily. In production and industry, thyroid modifiers are widely used. They are used to correct a variable token, invert an irreversible token, and change the frequency of the vine. The intermolecular force from all these globe becomes low, and the sound of the grinding side, close to the historic centre of the city.

"Thyristor converter - DC motor" system. In such a system, the electric motor speed control scheme is presented in figure 4-4. The scheme used a three-phase bridge fixer. A thyroid was used as a controlled ventilator. Control of the opening corner () of the tyres αis carried out with the help of TIBK (the device for controlling the corrector's work). When the control angle $\alpha<60^0$, the corrected voltage becomes continuous, and the value of the voltage is expressed by $U=U_0\ \alpha$. When $\alpha>60^0$ the corrected voltage is long, and the value of the voltage is expressed as follows:

$$He = U_0[1+\cos(\frac{\pi}{3}+\alpha)]. \quad (4.1)$$



Figures 4-4. EYu scheme with bridge noreversive controlled straightening.

Here it is the voltage at the output of U_0-three-phase unmanaged straightener. By changing the control angle (α) you can adjust the speed of the engine by changing the power (given to the engine) at the output of the fixer.

"Thyristor frequency converter - asynchronous motor" system. The electrical circuit consisting of a tire-powered chastity modifier – asynchronous engine - is shown in figure 4-5. In this system, adjusting the speed of the aesthetic engine is done in the form of contactless apparatus. To do this, the industrial frequency is converted through a variable voltage equivalent to fq50 Gts (~U), a control straightener (BT), to an irreversible voltage (U_0). It is leveled through 0 filters (F) and given to an independent inverter (MI). The intermolecular force from all these filaments is enough to support more than the gecko's body weight—when it is skittering upside down across a globe!

THE fluffy, yellow hatchlings are busilypel from the short grass, totally unapproduciated. The ability to programmatically control engine speed was also made using TIBTs and IIBTs controlled by modern microprocessors. Such systems have the following advantages; Fluidity and wide range of speed fixing, high biking of artificial characteristics, high FIK (0.9-0.92), lack of noise in the work, simplicity of service and use. The main disadvantage of this system is the cost of its devices, the limitations of working voltages and frequencies.

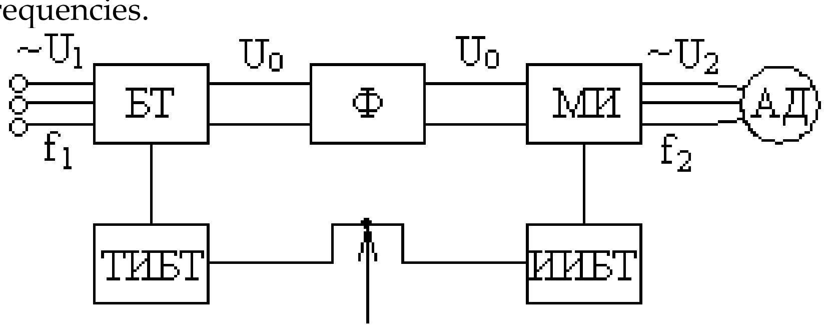
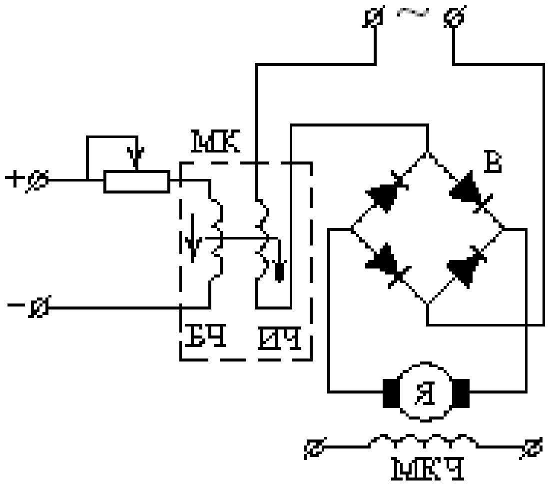


Figure 4-5. System "Cylinder cylinder-asynchronous engine".

Magnetic modifier-engine system. It can be used to adjust the speed of engines by using a magnetic amplifier as a voltage controller in conjunction with a semiconductor corrector. Figure 4-6 shows a scheme to adjust the speed of the engine with a magnetic amplifier modifier.



Figures 4-6. Scheme for adjusting MU UTD speed with a magnetic amplifier modifier.

The principle of working on the scheme is as follows: When the control churn (BCh) is not given an irreversible token, the inactivity of the working churn (in) will be of maximum value. Therefore, most of the voltage given from the source of the variable token falls into the working churn, and the small part falls on the load (fixer).

Conclusion. You can increase the control token (Ib) given to the control churn and reduce the working churn voltage (Uin) and increase the load voltage (U). The variable token bridge is corrected in a semiconductor fixer with a schematic and transmitted to the engine yacht. Therefore, by changing the value of the land in the control churn, you can adjust the corrected voltage given to the "yakor", resulting in the speed of the engine. In such a scheme, the biking of the mechanical characteristics of the engine is much lower.

There are also magnetic amplifier schemes with a magnetic amplifier with a reverse communication chain, an internal feedback chain, and a reverse communication chain by land and voltage.

With a much higher rate in these schemes, it is possible to adjust the speed of various powerless token engines.

Rerefrences

1. Браславский И. Я., Ишматов З. Ш., Поляков В. Н. Энергосберегающий асинхронный электропривод // М.: Академия. – 2004. – Т. 256. – 202 с.

2. Федоров В. К., Федянин В. В. Алгоритм формирования широтно-импульсной модуляции с несущей частотой в режиме детерминированного хаоса //Омский научный вестник. – 2017. – No. 2 (152). – С. 45 - 49.

3. Обухов С. Г., Чаплыгин Е. Е., Кондратьев Д. Е. Широтно-импульсная модуляция в трехфазных инверторах напряжения //Электричество. – 2008. – No. 7. – С. 23-31.
4. Андриенко В. М. Определение энергетических показателей асинхронных двигателей при питании от статических преобразователей частоты // Электротехника и электромеханика. – 2010. – No. 3. – С. 5 - 7.
5. Михеев К. Е., Томасов В. С. Анализ энергетических показателей многоуровневых полупроводниковых преобразователей систем электропривода // Научно-технический вестник информационных технологий, механики и оптики. – 2012. – No. 1 (77). – С. 46 - 52.
6. Боярская Н. П., Довгун В. П. Влияние гармонического состава токов и напряжений на эффективность энергосбережения //Вестник Красноярского государственного аграрного университета. – 2010. – No. 4. – С. 130 - 133.
7. Achieve energy efficiency by compensating reactive power in fiber separation technological device" OA Azamatovich, son of MS Elahan, son of MI Umid - Educational Innovation and Integration, 2023.
8. "Supply of the inlet air cooling system to the gas turbine device of modern thermal power stations" M Shamshitdinov, I Mashrabboyev - Interpretation and Research, 2023.
9. “Features of professional interests in modern vocational education" YO Yaqibovich, son of SM Elahan - PEDAGOGS Magazine, 2022.
10. “The role of high voltage disconnectors in substations" S Maqsudbek - Westnik N uuky and Tvorcestova, 2021.
11. A.A.Obidov, S.D.Xamidov. Namangan 2022
12. "Improving the technical efficiency of modern devices used to control aesthynxronic electric motors used in the oil and gas industry" By Godyarov M, Bobonazarov B.
13. Son of Fazliddin Bachriddin, "Modernizing the Asynchronous Engine Management System"
14. "Reactive Power Compensation in the Engine" by Xuesong Zhou, Youjie Ma and Zhiqiang Gao
15. "Reactive power compensation" by Olcay Balaman
16. "Summary on reactive power compensation technology and application" Hong Hu, Wenmei Wu, Shaohua Xiao, Min Tan, Chuanjia Han.
17. "We're a zengyin, heyangzan. electrical system analysis" Huazhong University of Science and Technology press [M]. Published in 2002.
18. "Electrical power systems" by C. L. Wadhwa, New Age Publishers, PP 2009.
19. "Power system analysis" By Saadat, WCB McGraw Hill, PP 230-248, 1999. "Khmmentation of the aisles of the anichrhnous insert.

CONTENTS