

The Status quo and the Development Direction of Mechanical Automation Technology

Yueping Guo

Liuzhou Cigarette Factory, China Tobacco Guangxi Industrial., Ltd, Liuzhou, Guangxi, China

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Abstract: With the development of the times and the advancement of science and technology, the social economy has entered the stage of rapid development. The current era, in order to improve the production efficiency and production quality. The requirements for mechanical equipment in social production are gradually improved. The mechanical equipment has been constantly upgraded and has been developed toward high efficiency and high quality. In order to meet the development requirements of today's era, the automation technology of mechanical production is indispensable.

This paper has a brief overview of mechanical automation technology and understands its meaning. By analyzing the characteristics of mechanical automation technology and clarifying its current situation and future development direction in China, mechanical automation technology can better serve China's socialist modernization.

1. Introduction

The development of social economy has promoted the continuous development of science and technology. In order to meet the growing material requirements of the people, the machinery industry is also constantly developing. The mechanical automation technology is constantly improving and is gradually being widely used in various fields. The innovation and development of mechanical automation technology have driven the rapid development of the entire machinery industry, have reduced the cost of machinery production, and have made the entire industry's manufacturing methods and manufacturing efficiency undergone earth-shaking changes [1]. For the development of China's socialist modernization, we must profoundly understand the importance of mechanical automation technology in the machinery industry, learn and grasp the new mechanical automation technology.

2. Overview of Mechanical Automation Technology

Mechanical automation refers to the automation of control through the machine or mechanical device in the production process. Mechanical automation technology is the core and source of mechanical automation. Mechanical automation technology refers to the use of advanced computer technology and electronic integration technology in mechanical production activities to achieve a Man-machine integrated mechanical manufacturing system and to achieve the automatic and continuous production of products. The technique can be completed efficiently and with high quality [2]. The wide application of mechanical automation technology is conducive to promote the rapid development of China's machinery manufacturing industry and to promote the development of science and technology in China.

3. Characteristics of Mechanical Automation Technology

With the continuous development of mechanical automation technology, China's machinery industry has provided convenience for people's lives. Mechanical automation technology presents the following different characteristics: First, the production efficiency and production quality of mechanical manufacturing are improved. Due to the development and application of mechanical

automation technology, the machine can automatically control the entire production process. It greatly reduces the error rate of human operation. Second, the manufacturing process of mechanical manufacturing is safer. Mechanical automation technology uses computer technology, electronic integration and other technologies to improve the safety of machinery and equipment, make up for the inadequacies of manual processing, and reduce the cost of later maintenance equipment through mechanical automatic operation. Third, the labor form of China's machinery manufacturing industry has been changed. The application of mechanical automation technology has improved the efficiency of mechanical production, reduced the cost of human resources, and changed the labor form of machinery manufacturing.

4. The Status quo of China's Mechanical Automation Technology

China's mechanical automation started relatively late and the development of various aspects is still not perfect. There is still a certain gap with the level of mechanical automation in developed countries. And there are some problems in the process of development. At present, China's machinery automation technology is still in the primary development stage; the automation level of machinery and equipment is low; the industrial structure of the machinery industry is low, and the development of the machinery industry is very uneven. At the same time, machinery manufacturing enterprises are relatively backward in technology, and enterprises that have independent core technologies account for only a small proportion. In addition, China's existing mechanical automation management system is still not perfect. China has not developed a profound management system. Most enterprises blindly imitate foreign management systems and have no style. There is a shortage of talented individuals who could engaged in mechanical automation in China, especially those with practical operational skills. So, it is difficult to apply and develop advanced technologies in a timely manner. At present, the status quo of China's mechanical automation technology is quite severe. We need to continuously reform on the basis of fully understanding our own deficiencies, and constantly pursue progress and promote the development of our mechanical automation technology.

5. The Application of Mechanical Automation Technology

5.1 Information Data Automation

Internet + era, the computer network technology is gradually mature. Information data automation is the foundation of enterprise development. Now the production and management of enterprises are basically controlled by computer, especially the application of computer numerical control technology in the mechanical automation industry, which accelerates the mechanical automation technology and plays an important role in saving costs, reducing manpower and material resources. This also prompts China's machinery manufacturing industry to gradually integrate with international enterprises and achieve data standardization.

5.2 Processing automation

Nowadays, the basic molding machinery manufacturing enterprises have basically realized the processing automation. The processing automation reduces the repeated work of the workers, reduces the labor intensity of the workers, reduces the number of workers, and promotes the cost saving. The accuracy of processing automation is much higher than that of labor. It reduces the failure rate in the production process and guarantees the quality of products.

5.3 Assembly Automation

Mechanical equipment is made up of mechanical components. The traditional working mode requires people to assemble. This working method is time-consuming, labor-intensive, and with a high turnover rate. After the realization of assembly automation, the entire assembly work is completed on the production line. Each piece of equipment has its own functions. The entire production line is a flow-through operation. After the completion of a production line, the machine

is completed according to the completion time. With the production line, the work period is shortened, the work efficiency is improved, and the quality is guaranteed.

5.4 Inspection Automation

After the product is finished, it must pass the inspection. After the inspection is qualified, the product can be shipped. The traditional inspection method uses manual detection which is very unscientific and inaccurate. Now the inspection is automatic, and use equipment for testing, which is very convenient, fast, scientific and accurate. With the continuous development of science and technology, the quality requirements for the production of manufacturing machinery products are increasing; the number of precision parts produced in the manufacturing process are increasing, and also increases the difficulty in the quality inspection of production products. The traditional manual detection technology method is not only difficult to test high-precision parts, but also reduces the productivity of production personnel. Automated inspection technology can solve these problems very effectively. And the quality of the products in the mechanical production is tested to ensure the quality of the products produced. Inspection automation is the requirement for modern industrial development and makes new requests for social development.

6. The Development Direction of Mechanical Automation Technology

In order to realize the long-term development of China's mechanical automation technology, the technology should be combined with China's national conditions and the status quo of China's mechanical automation technology. The technology should be analyzed and discussed in order to study solutions, clarify the future development direction and actively face the problems and challenges in the future development [3]. China is still in the initial stage of development, the basic technology of mechanical automation is still immature. The high-end technologies such as computers have not been widely used. Therefore, we should learn from advanced countries, strive to learn from and absorb advanced national technologies. At the same time, we must also develop unique and applicable mechanical automation technologies based on China's national conditions. Chinese enterprises can also introduce advanced foreign equipment, do research on existing equipment, and strive to develop enterprise's core technologies which are also conducive to enhance the competitiveness of enterprises and to obtain more economic benefits. In the process of developing and creating mechanical automation technology, individuals with professional knowledge are indispensable. China should break the traditional way, adjust according to market and demand and cultivate relevant professional talents. And at the same time introduce professional management system and improve existing management methods. Concerned about the current situation, the future development path of China's mechanical automation technology is quite long. In the process of this exploration, we can't be quick. We must be down-to-earth, keep pace with the times, constantly innovate on the basis of clarifying the future development direction and strive to build a socialist society in China.

7. Conclusion

Mechanical automation technology has an irreplaceable role in both the development of the machinery industry and the enhancement of China's scientific and technological competitiveness. Faced with the status quo of China's mechanical automation technology, we must be brave enough to face challenges, not afraid of difficulties, continue to study under the current technical level, actively learn and learn from other countries' advanced technical knowledge, and promote the further development of China's science and technology. With the continuous expansion of the trend of economic globalization, information and technology are gradually developing towards globalization. In this process, the development of China's machinery automation technology will also encounter unprecedented opportunities and challenges. We must strive to seize opportunities and actively face challenges, take a healthy and efficient scientific road to improve China's scientific and technological competitiveness and overall national strength.

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