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PRATICAL APPLICATION OF NUMERICAL CONTROL TECHNOLOGY IN MACHINING MACHINE TOOL

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ARTICLE DETAILS

ABSTRACT

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With the continuous development of science and technology, CNC technology has been widely used in all walks of life, especially in the field of machining. Through the application of numerical control technology, the accuracy of machining is effectively improved, and the overall quality and efficiency of machining are effectively improved. It also provides a new direction for the future development of the mechanical processing field, and promotes the development of the mechanical processing field towards automation, refinement and intelligence. Based on this, this paper mainly studies the practical application of numerical control technology in machining machine tools, and puts forward the future development prospects of numerical control technology according to its situation, so as to provide a reference for the future development of mechanical processing.

KEYWORDS

Numerical control technology, Machining airport, Application.

1. INTRODUCTION

Numerical control technology mainly outputs the set instructions through the computer system, so as to control the processing, production and manufacturing of mechanical equipment. Through numerical control technology, mechanical processing can be effectively combined with computer, opto-mechanical and other related equipment, which can promote the refined development of mechanical processing technology, reduce costs, improve its production efficiency and production quality, and bring good economic benefits to enterprises.

2. THE APPLICATION OF NUMERICAL CONTROL TECHNOLOGY IN MACHINING MACHINE TOOLS

2.1 Application of CNC technology in production machine tools

In the field of machining, manufacturers pay more attention to the effective cooperation between equipment and systems. With the advent of the Internet era, computer technology has gradually been widely used in various industries. In the machinery manufacturing industry, the gradual application of modern computer information technology and manufacturing technology has effectively improved the production efficiency and production quality of the machinery manufacturing industry. The application of numerical control technology in the field of machining has greatly improved the production accuracy of mechanical products. CNC machine tools mainly control the processing and manufacturing of machine tools through computer program codes, thereby ensuring the accuracy and scientificity of mechanical products. In the actual control process,

the production information and control information of mechanical products can be digitally processed, so that the staff can better supervise, control and process through the computer control system. Staff through the computer control system is conducive to the actual needs of grassroots work. Through the arrangement of different staff and the better adjustment of the machine tool with different parts, it is convenient for the more stable work of the machining machine tool.

2.2 Application of numerical control technology in machining system

According to the current development status of CNC technology, there is a certain gap between the application of CNC technology in machining in various industries and fields. Compared with developed countries, the gap is larger. This requires relevant technical personnel to strengthen the emphasis on numerical control technology and conduct in-depth research on the application of numerical control technology in the field of machining. Through the reasonable integration of existing resources, the combination of ordinary machine tools and CNC machine tools can be promoted. Scientific and reasonable processing grades lay the foundation for the development and application of CNC machine tools, and then enable the stable and rapid development of CNC machine tool technology on this basis. CNC machine tools have higher requirements for precision and craftsmanship. The application of CNC machine tool technology in the field of machining can effectively enhance the production efficiency of machining. This can make detailed and refined control of mechanical products, improve the economic benefits of mechanical processing plants, and meet the application requirements of the market for mechanical products.

2.3 Application of CNC technology in industrial development

Numerical control technology plays an extremely important role in industrial development. In particular, some areas that cannot be achieved by manpower are more critical. The application of numerical control technology in the field of mechanical processing can simulate the operation and processing process, so as to control the processing of mechanical products more accurately. This not only reduces the workload of the staff, but also reduces the demand for staff for machining to a certain extent. Moreover, it can also reduce the potential safety hazards to the staff in the process of machining, production and manufacturing, and ensure the overall sales volume of machining, production and manufacturing and the overall quality of mechanical products. At the same time, through the computer operation of the numerical control technology unit, the related equipment can be controlled and operated more effectively. This can ensure that the computer system can complete the relevant operations strictly according to the set procedures and quality, and carry out the corresponding operations. In addition, the computer system can monitor each link and process in the machining process more comprehensively and in detail, so as to find the problems and faults in each process link and process in time. The remedial strategy and maintenance plan adopted for its problems and failures can ensure the stable development of all links and processes in the machining process. This can greatly reduce the economic losses caused by problems and failures in the machining process and process. The continuous development of numerical control technology has also brought great effects to the aerospace industry. In traditional machining, the precision and quality of products processed by its processing technology cannot meet the actual needs of the aerospace industry. CNC technology can effectively improve the accuracy and overall quality of mechanical products. This ensures that the ductility and toughness of the flight device can be improved, which can improve the safety and reliability of the flight device and promote the development of the aerospace industry.

2.4 Application of numerical control technology in coal mine machining

The application of numerical control technology in coal mine machining has greatly improved the manufacturing level and quality of coal mine machinery and equipment. It not only meets the mining needs of the current coal mining field, but also promotes the development of coal mining vision to a certain extent. Among them, the most obvious is the improvement of the cutting speed and coal mining speed of the shearer by the numerical control technology. Through numerical control technology, more collection times can be achieved within the original time, which effectively improves the coal mining efficiency of the shearer. In addition, the numerical control technology can also improve the coal mining quality of the shearer, which in turn promotes the improvement of the shearer's own product effect to a certain extent. The application of numerical control technology in the coal mine field reduces the demand for staff and liberates a lot of human resources. It also promotes the development of coal mines in the direction of modernization and automation. This also greatly reduces the occurrence of safety accidents in the coal mining industry, and effectively ensures the personal safety of relevant staff.

3. APPLICATION AND DEVELOPMENT PROSPECT OF NUMERICAL CONTROL TECHNOLOGY IN MACHINING

3.1 Development of more sophisticated equipment and technology

Only continuous research and development of more sophisticated equipment and technologies can promote the application of CNC technology in the field of machining. This ensures the overall efficiency and quality of machining, production and manufacturing, and promotes the effective improvement of the precision of machining, so as to meet the nutritional needs of the current market for mechanical products. Nowadays, the gap between the precision of mechanical products processed and produced by China's application of numerical control technology and that of developed countries is not large. However, in terms of production efficiency, there is still a certain gap with developed countries. Therefore, in the future development of CNC technology, it is necessary to strengthen the research and development of CNC technology work efficiency and other aspects.

Continuous and continuous research and development can narrow the gap with developed countries and ensure the scientific, stable and effective application of CNC technology in machining machine tools. The development of numerical control technology is conducive to improving the quality and efficiency of machining.

3.2 Application of intelligent open mode

With the advent of the Internet era and the continuous development of science and technology, various modern technologies and modern new materials have been applied in the field of industrial production. Its mechanical processing equipment is also gradually developing towards automation and intelligence. With the continuous development of modern technology, smart devices are gradually applied in all walks of life, and gradually occupy a more important position in public life and work. Automation equipment and intelligent equipment have also become the future development direction of the current mechanical processing field. The application of automation management system and control system in the field of mechanical processing can make its various processing processes and links more efficient and convenient, saving a lot of human resources. The application of intelligent electronic control system in the field of machining can allow machining to automatically generate various process parameters on the basis of automatic control. The processing process is controlled by the intelligent electronic control system, which is conducive to the convenience of the machining process and links, and ensures the effective improvement of the machining efficiency.

3.3 Combination of numerical control technology and biotechnology

Numerical control technology is gradually developing towards the direction of combining with biotechnology. The application of numerical control technology in biotechnology can ensure the accuracy and delicacy of biological experiments, so as to meet the future development needs of biotechnology. Moreover, numerical control technology will have a wider openness with the continuous development of science and technology. Continuously deepening research, scientific, rational and detailed planning of the future development and application of CNC technology can promote the application and development of CNC technology in various fields.

4. CONCLUSION

This paper firstly expounds the application of numerical control technology in machinery from the application of numerical control technology in production machine tools, the application of numerical control technology in machining system, the application of numerical control technology in industrial development, and the application of numerical control technology in coal mine machining. Applications in processing machine tools. Then according to the actual situation, the future application and development prospect of numerical control technology are put forward from several aspects, such as the development of finer equipment and technology, the application of intelligent open mode, and the combination of numerical control technology and biotechnology.

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