Research on the Application of Mechatronics Technology in Intelligent Manufacturing

Dongmei Li
Taishan University, Tai'an 271000, China.

Abstract: In the process of China's industrial modernization development, intelligent manufacturing is one of the very important links, in the promotion of social development and economic development plays an important significance, therefore, it is necessary to maximize the level of intelligent manufacturing. As an important technical means in intelligent manufacturing, mechatronics technology has very great application advantages, which can not only promote the production efficiency and product quality, but also effectively reduce the cost of expenditure. This paper will study the application of mechatronics technology in intelligent manufacturing.

Keywords: Mechatronics Integration Technology; Intelligent Manufacturing; Application Research

Introduction

With the level of science and technology, more and more emerging technologies, electromechanical integration technology integrates control technology, computer technology and information technology and other fields, and widely used in industrial production, not only can improve the level of our manufacturing intelligence, but also can promote industry transformation goals. Now people's demand for products changes with the development of The Times, the traditional artificial manufacturing has no way to meet the needs of the development of the current society, through the application of mechanical and electrical integration technology can promote intelligent manufacturing level to informatization and intelligent development path, to achieve the main goal of double improve production effect, this can effectively meet the demand of the actual development of the current society, prompting our country industrial production in the complex market environment can keep healthy and stable development, and boost the rapid development of national economy in our country.

1. Overview of mechatronics technology and intelligent manufacturing

Intelligent enterprise, intelligent supply chain and intelligent factory is a key part of intelligent manufacturing, intelligent manufacturing contains big data, Internet, Internet and cloud computing and other advanced technology, can promote intelligent and automation manufacturing goals, and the integration of modern manufacturing technology and the latest information technology, such as: artificial intelligence technology, can manufacturing process efficiency, flexibility, adaptability and restructuring, and so on. Electromechanical integration technology is an important technology of intelligent manufacturing, it is a combination of computer, mechanical and electronic, and so on many technologies, the technology of integration system, can promote equipment and production process to flexible control, intelligent control and automatic control, thus the manufacturing quality and manufacturing efficiency. Mechatronics technology is widely used in various fields, and has the highest application value in intelligent manufacturing. The adoption of electromechanical integration technology can promote the production process to achieve the purpose of reconstruction, produce according to the actual production needs, quickly change the production line layout, and support the manufacturing applications of different cycles, and use conveyor belt and robot automation devices to carry out welding, assembly and processing work. In addition, using sensors and embedded system facilities can adjust and visually monitor the machine and the production process in real time, and analyze it with cloud big data, so as to achieve the purpose of maintaining the machine, optimizing quality

management and planning production. Therefore, the application of mechatronics technology in intelligent manufacturing can promote the coordinated development of the two, so as to bring more advantages to the production mode in the manufacturing field.

2. Application of mechatronics technology in intelligent manufacturing

For intelligent manufacturing and electromechanical integration technology, has a certain correlation between the two, electromechanical integration technology is the field of multiple technology together, has a very obvious advantage, the technology is applied in intelligent manufacturing, to the role of electromechanical integration technology value efficient play out, prompting industrial can achieve transformation goal. At present, in industrial practice, mechatronics technology has been widely used in it, and plays a great role in improving product quality and production efficiency. However, intelligent manufacturing can fully reflect the application advantages of electromechanical integration, through the use of computer technology to simulate the production of products, can effectively optimize the allocation of resources, but also can reduce the production cost of the enterprise to the maximum, so as to promote the economic benefits of enterprises to reach the highest point[1].

2.1 Transducer technology

Because intelligent manufacturing will not be constrained by human resources, it can maximize the economic benefits of enterprises and the production efficiency of machinery. The application of the electromechanical integration sensor technology in intelligent manufacturing can effectively ensure the accuracy of the control system operation. In the production stage of manufacturing industry, wireless sensors are usually used to carry out information collection. After the collection, the information will be automatically transmitted to the computer terminal system, and finally the staff will use appropriate information technology to process the information. Through the application of sensor technology can effectively monitor the whole process of intelligent manufacturing, can find the various problems in the production process in time, and can be solved in time. And, applied in intelligent manufacturing electromechanical integration sensor technology, can improve the stability and accuracy of wireless sensor, can effectively break the traditional information existing in the process of intelligent manufacturing, can at any time in the information terminal process supervision and access to information, etc., to ensure that intelligent manufacturing can be stable and orderly, also can be to a certain extent will maximize manufacturing speed. Therefore, the scientific and reasonable application of sensor technology can improve the production efficiency of intelligent manufacturing, but also promote the field of intelligence to a new level.

2.2 Numerical control technique

One of the important links of industrial production is the field of machinery manufacturing. In order to promote the rapid development of the field of industrial intelligent manufacturing, we should keep up with the pace of the development of The Times, and constantly update the production technology mode. In intelligent manufacturing, intelligent control technology is one of the very important technologies, the application of this technology in the CNC production stage, can effectively collect and organize information data, but also can further improve the control effect. In the process of applying numerical control technology, production accuracy control is a very important link. The application of intelligent system in the fuzzy control of the production line can effectively optimize the accuracy of storage equipment. However, in the modern industrial production, numerical control technology is a very important mode of production, which can promote the modern industry to achieve the goal of flexible automation. At present, in the field of intelligent manufacturing, numerical control technology mainly adopts the operation mode of CPU + bus, which can promote the intelligent manufacturing to achieve the goal of 3 d simulation[2].

2.3 Industrial intelligent robot

With the continuous development and progress of science and technology, the industrial intelligent robot has long since become the key technology in the electromechanical integration technology. Industrial intelligent robot combines automatic control technology, bionic technology and structure technology and many other new technologies. Due to the gradual improvement of product design capability, the output capacity of intelligent manufacturing field needs to be further improved in order to keep pace with the development of The Times. In addition, industrial intelligent robot technology can effectively reduce the cost of labor, and has a very strong adaptability, whether in a good environment or bad environment can be stable production, and can effectively reduce the probability of accidents in the process of intelligent production, so as to greatly improve production safety. Although the cost of

industrial intelligent robot is very high, but the use of life is relatively long, also can highly maintain 24 hours operation advantage, these are the traditional human production cannot achieve, so, in the application in intelligent manufacturing electromechanical industrial intelligent robot is the inevitable trend of the current development, related enterprises must recognize the important role of industrial intelligent robot, increase its application, so as to promote industrial intelligent robot in the field of intelligent manufacturing can be effectively promoted and application.

2.4 Production line construction

In terms of the current production line construction in China's intelligent manufacturing, most of them have reached the goal of automation and mechanization of production, and the demand for manpower in the traditional production mode has been gradually reduced. The application of mechatronics integration technology in the production line construction of the intelligent manufacturing can further deepen the degree of automation production, but also effectively improve the production process, and promote the operation efficiency of the production line can be maintained in high speed operation. When applying the mechatronics technology to the production line, the production line modules must be effectively adjusted according to the actual situation to ensure that the mechatronics technology is highly consistent with the intelligent manufacturing production line. In addition, in the application process, the corresponding perfect supervision system and management system should be formulated, so that the whole process of the application of mechatronics technology can be effectively supervised. At the same time, regular maintenance and overhaul should be carried out, so as to ensure that the production line can always maintain efficient operation[3].

Epilogue

In a word, in intelligent manufacturing, electromechanical integration technology has a very important position, not only can promote the manufacturing industry to be effective transformation, but also can promote the industry to achieve the goal of intelligence and automation. Therefore, it is necessary to deeply study and develop the electromechanical integration technology, and reasonably apply it according to the actual situation in the intelligent manufacturing, so as to promote the manufacturing industry to develop in a better direction, so as to provide strong technical support for the manufacturing field.

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