Development and Application of Green Manufacturing

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Abstract. Green manufacturing is an important means to alleviate the pressure of world resources and environment and promote the transformation of manufacturing industry. This paper analyses the main application of green manufacturing and the future development direction of green manufacturing, and is available for suggestions for the future development of green manufacturing. Green manufacturing promotes the formation of circular economy model and the sustainable development of human society. It is an indispensable part of implementing sustainable development strategy.

1. Introduction
Manufacturing industry is the material basis and the main body of a country's national economy. It can reflect the comprehensive national strength of a country. However, the increase of mechanical manufacturing is aggravating the world's energy machinery. Wastewater, waste gas and residue are constantly produced in the manufacturing process. It has a great impact on the environment and is not conducive to the sustainable development of the ecological environment. Economic interests are no longer the sole goal of manufacturing industry. Strengthening the protection of ecological environment and scientific development and utilization of resources have become new goals. In order to achieve this goal and encourage the vigorous development of green manufacturing, it is of great significance to achieve the sustainable development of manufacturing industry.

2. Overview of Green Manufacturing
Green manufacturing, also known as environmental awareness manufacturing, is a modern manufacturing mode, which takes into account the consumption of material resources in the manufacturing process and the impact on the environment in the production process. "Green Manufacturing" plays an important role in promoting the sustainable development of human society and the development of circular economy model in modern manufacturing industry. The whole life cycle of products includes product design, product processing and manufacturing, product packaging, product use and scrap disposal. In the whole life cycle of a product, the goal of green manufacturing is to reduce the negative impact of the environment, improve resource utilization and increase comprehensive benefits.

3. Application of Green Manufacturing

3.1. Using Green Method in the Process of Mechanical Product Design
Green method is a modern design method which takes environmental factors, product quality, product function and product recyclability into consideration. Green method requires designers to make a
reasonable comprehensive analysis of the whole life cycle of mechanical products. It not only ensures the quality of products and the function of products, but also ensures that environmental pollution is small or non-polluting, which is convenient for recycling and utilization, and improves the utilization rate of resources. It is necessary to abandon the unreasonable process and method in traditional mechanical manufacturing means and control the time of green product production reasonably so as to improve the quality of mechanical products as far as possible, so as to promote the "green" development of manufacturing industry and promote the establishment of green production system.

3.2. Green Materials Used in Manufacturing of Machinery Products
Green material refers to the material that has little or no pollution to the environment in the process of raw material adoption, manufacture and use of mechanical products, which requires no harm to human body. Green materials can be recycled, which not only reduces production costs and material consumption, but also reduces environmental pollution, thus promoting the development of green manufacturing. The cost of green materials is higher, but enterprises should not be short-sighted. In order to seek the best interests, they should abandon the use of color materials and choose the traditional materials which are polluted and non-recyclable. This will not only reduce the quality of products, but also cause a waste of resources, which is not conducive to sustainable development and may be eliminated by society.

3.3. Application of Green Technology in the Production of Machinery Products
Green technology requires reducing environmental pollution and improving energy utilization in the production process of products. For example, waste materials and liquids are recycled and processed into products to improve the utilization rate of resources and realize the recovery and utilization of resources. The focus of green technology should be changing the unreasonable and defective aspects of traditional technology, especially in the pollution process and resource waste process.

3.4. Reducing Environmental Pollution by Green Treatment
In the traditional mechanical manufacturing process, a large number of wastes and pollutants will inevitably be produced, and improper treatment will cause huge pollution to the environment. If waste and pollutants cannot be recycled, reasonable green treatment methods should be adopted to minimize environmental pollution.

In short, in the whole life cycle of products, the application of green manufacturing can reduce environmental pollution and waste of resources, improve the utilization rate of materials, and is of great significance to promote sustainable development.

4. Future Development Trend and Suggestions of Green Manufacturing
As an important direction for the future development of manufacturing technology and manufacturing mode, green manufacturing will become an important challenge and competitive field in the future industry. In the future, green manufacturing will absorb advanced technologies in other fields, promote green manufacturing and sustainable development, and play a great role in building a resource-saving and environment-friendly society. Here are some suggestions for promoting the development of green manufacturing.

4.1. Vigorously Promote the Basic Research Process of Green Manufacturing
Strengthen international cooperation and exchanges, support research projects related to green manufacturing, strive to improve the level of green manufacturing; absorb the strength of various disciplines, such as nanotechnology, neural network, new energy technology, information technology, strengthen the research of basic science related to green manufacturing and tackle difficult problems; increase investment in research projects related to green manufacturing.
4.2. Actively promote green manufacturing research results into products
Increase the research on green manufacturing technology, green design technology, green production technology, green recycling technology and remanufacturing technology. Combining with other disciplines, break through a series of key technologies, develop a series of typical green processes and key equipment of independent intellectual property rights, and form a characteristic green manufacturing industry system, so as to reduce environmental pollution and energy consumption, and promote. Sustainable development of manufacturing industry.

4.3. Improve the legal system and industry standards to escort green manufacturing
According to the development characteristics and national conditions of green manufacturing, the recycling system of waste products should be established step by step, the legal system in relevant fields should be improved, the industry standards in green manufacturing field should be formulated, and the training of professional and technical personnel should be strengthened. The concept and knowledge of sustainable manufacturing should also be disseminated and popularized, and the awareness of environmental protection and resources of the whole people should be raised, so as to promote the establishment of a sustainable manufacturing system.

5. Conclusion
In short, green manufacturing is an important part of green construction machinery, which plays a great role in improving the utilization of limited resources, reducing production costs and environmental pollution. Green manufacturing promotes the formation of circular economy model and the sustainable development of human society. It is an indispensable part of China's sustainable development strategy. To promote green manufacturing, we need to integrate the concept of "green" into the life cycle of products, use green methods in the process of mechanical product design, use green materials in the process of mechanical product manufacturing, apply green technology in the production of mechanical products, and use green treatment methods to reduce environmental pollution.

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