Research on Application of Green Manufacturing Technology in Mechanical Manufacturing Process

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Abstract: In order to improve the comprehensive benefit of mechanical manufacturing and processing technology, we need to carry out a sound green design of mechanical manufacturing system in order to adjust the scientific green coordination of every link in mechanical manufacturing. In the process of research and data collection, it is found that this manufacturing technology has some defects in the manufacturing process, in fact, green energy plays a decisive role. With the acceleration of urbanization in China, higher requirements are put forward for green design.

1. Introduction

One of the pillar industries in the development of modern society is mechanical manufacturing. China's mechanical manufacturing engineering is naturally the top priority. To mature its development, play its important role in all aspects, it is imperative to study green manufacturing technology. This paper will study the advantages and disadvantages of green manufacturing technology machine manufacturing process. In the process of research and data collection, it is found that this manufacturing technology has some defects in the manufacturing process, in fact, green energy plays a decisive role. Before introducing the application of green manufacturing technology in the process of mechanical manufacturing in detail, we first briefly introduce the simple definition of terms.(1) Green manufacturing technology, green manufacturing technology is a set of green design, green technology, green packaging, green production in one of the science and technology under the guidance of the green concept. (2) Mechanical manufacturing. Mechanical manufacturing refers to all kinds of power machinery, lifting and transportation machinery, agricultural machinery, machinery and machinery metal mines, chemical machinery, textile machinery, machine tools, tools, instruments and other mechanical equipment, such as industrial production.

2. The Technical Principle of Mechanical Manufacturing

We all know that green manufacturing technology plays an important role in mechanical manufacturing engineering, but there are still some inevitable problems in mechanical manufacturing engineering. The development of green manufacturing technology, in the process of maturity, every new thing must go through this process. In order to study green manufacturing technology, it is used in the process of mechanical manufacturing, and the present situation of green manufacturing technology in the process of mechanical manufacturing is studied. However, the basic goal of green manufacturing technology is to effectively solve these problems so as to achieve the sustainable development of social resources. Industrial production makes machinery in China precisely because of the addition of green manufacturing technology to reduce work fatigue, increase added value for products, reduce production costs, energy and material costs. Therefore, the application of green manufacturing technology in manufacturing industry must continue to

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develop and implement. In order to ensure the further improvement of green manufacturing technology, it is necessary to further study the advantages and disadvantages of green manufacturing technology, which needs to be greatly improved.

Figure 1 Mechanical manufacturing

3. Machinery Manufacturing Technology

3.1. Precision Molding Technology

The contradiction in the development of green manufacturing technology, first of all, to find out the manufacturing advantages and development trends of green manufacturing technology. and developed according to its advantages. Forming manufacturing technology, including casting, welding, plastic processing, etc., all need certain certification [1]. Precision technology and material consumption are green manufacturing technology came into being, so that precision casting technology mature, can successfully penetrate and develop. In all aspects of manufacturing, make the production process more smooth, greatly reduce raw materials and energy, development is the fundamental goal of green manufacturing technology.

3.2. Dry Processing Technology

At present, the main application field of dry processing is the machining industry, and the immature of dry processing technology leads to many things can not realize the development of dry processing technology well. not in accordance with the normal processing operation. With the development and maturity of green manufacturing technology, green manufacturing processing technology has become an important part of green manufacturing. the dry process was further improved. Now, the direct processing of near-vein-shaped gangue is an advanced manufacturing technology. It can be said that the treatment of the current dry process simplifies the manufacturing process and provides a practical and reliable waste treatment and recovery method [2]. As a new processing technology, green manufacturing technology has always been the way to obtain the law and has attracted worldwide attention and research. In the discussion of mechanical manufacturing technology, the new processing technology provided here by ecological manufacturing technology is the most important point.

4. Concrete Measures in Machinery Manufacturing and Suggestions for Rectification

4.1. The Government should Pay Enough Attention to Green and Introduce Some Favorable Policy Approaches

Countries and governments need to fundamentally adopt and implement appropriate preferential policies for these new and renewable sources of energy to promote the development of renewable energy. increase economic consumption in this area. Promote green through legislation, establish and improve green laws and regulations and related policies. For example, while combining construction with new energy, we should take corresponding supporting measures and protection measures to promote the application and development [3] of new energy. At present, many regions

provide subsidies for green independent heating, which is a good green promotion policy. and many industries should respond positively. In addition, we need to establish green product certification to encourage participation in the construction and application of green.

Figure 2 Mechanical manufacturing

4.2. Industry Departments Shall Actively Study and Apply Advanced Technologies

According to the relevant scientific investigation, it can be found that the greenhouse gas emissions from energy consumption account for more than 25% of the energy consumption emissions. Therefore, the problem of environmental energy consumption is also becoming more and more serious, and it must be solved as soon as possible. To promote green technology progress, suitable new energy sources can be selected according to the characteristics of different regions, such as promoting solar green in high altitude areas. For example, the solar green project that Xinjiang has begun to implement is a typical demonstration area of application [4]. Designers should fully grasp new energy application technologies, such as solar green system, geothermal green system, ground source heat pump green system and other knowledge related to green system, and use it in practice, in order to effectively achieve the purpose of efficient green.

4.3. Define Relevant Green Development Plans and Make Green Design Plans

It is necessary to make clear the green concept, formulate scientific, accurate and detailed green planning arrangements, and make full use of the waste land in urban space to carry out green design experiments, such as green transformation of abandoned factories, so as to "turn waste into treasure ". In order to improve the green efficiency, green and green ecology should be guaranteed. To improve the sustainable development efficiency of the environment, it is also necessary to give the planning and design personnel the conditions to meet the principle of material conditions before carrying out green design. Using environmental factors to adapt to the local conditions of green is the most effective way of design.

Figure 3 Green management in the machinery industry

4.4. Respect for Principles Relating to Coordinated Development

First of all, we should respect the coordinated development, the planning process should be

combined with the actual development, and follow the principle of seeking truth and pragmatism. It is determined that urban construction should be based on the actual population of the city and the needs of economic development and construction. It is necessary to protect the agricultural cultivated land in our country, while the urbanization construction, also can not sacrifice the agricultural cultivated land as the exchange condition. Planning and design personnel must carefully consider the problem between urban construction and cultivated land protection, which not only needs to be in line with urban construction, but also to ensure that the source of farmers' income is in a stable state, so as to ensure the balance and coordinated development [5] of the national economy. In addition, the development of urban construction should be adapted to local conditions. Each region has its advantages and disadvantages, so urban and rural development should make full use of its advantages to develop economic benefits. For example, cities on both sides of the Yangtze River are mainly zonal distribution based on water, which can lead to local economic development and tourism, which is the advantage of topographic advantages in urbanization construction. Therefore, in coordinating the contents, phases and programmes of the plan, the planning and design staff must be given the conditions to meet the principle of local conditions.

4.5. Development of Specific Plans for Integrated Development

We will strengthen cooperation between land administration departments and urban construction planning departments and do a good job in linking up the "two plans ". The two departments should unify and coordinate the management work, strictly implement the planning system, and earnestly achieve the "unified planning, unified land requisition, unified development, unified construction, unified management" four "unified ". Land use planning in urban areas should be based on land adjustment plans under the overall land use plan. The scope and control of land development formed in urban planning can not exceed the control standard of urban development master plan. The land use standard of urban planning and construction needs to be designed strictly according to the requirement of maintaining balance of total area, and the overall quality of cultivated land should be improved. Carry out the road development concept of "tapping the potential of connotation ". At present, in urban planning and land use, we should make great efforts to adjust our ideas, and turn the "extensive" construction mode, which is based on expansion, into the "connotation tapping potential" road development concept, which can give full play to the spatial benefits. Urban planning should clarify the concept of land transportation protection and formulate scientific, accurate and detailed land use planning arrangements. The new construction is best to choose the high level to reduce the occupation of national land, should ensure the height and the area is sufficient. Improve the utilization rate of wasteland, not blindly expand the surrounding areas of the city, and take the urban center as the transformation area. Using environmental factors to adapt to local conditions is the most effective way of design.

5. Conclusion

Since entering the 21st century, the sustainable development of our country has become the only way of modern development. For green to always carry out the idea of people-oriented sustainable development, the current progress of urbanization in China is gradually improving, so the demand is also gradually rising, gradually appeared with the energy supply and demand contradiction is increasing, this problem is the first task to be solved urgently by the relevant departments. In the process of coordinated development, we should respect the relevant concepts of sustainable development, and then carry out scientific and effective planning according to the specific actual situation, and fully ensure that it is scientific and sustainable while achieving green, so as to conform to the natural law of urban construction.

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3. Hubei Vocational and Technical Education Association Foundation Project: “Study on the Role of Accounting Skill Competition in Education and Teaching” ZJGB2019095.

References

[1] Wang, Nana. A study on the application of green manufacturing technology in mechanical manufacturing. Technology Wind, no. 16, pp. 164, 2020.

[2] Dream. Research and Application of Dry Cutting Technology Based on Green Manufacturing. Engineering Technology and Design, no. 20, pp. 152-152, 2017.

[3] Liu, Jing., Xu, Xiaobei. Application of Green Manufacturing Technology in Machining Process. Southern Agricultural Machinery, vol. 51, no. 1, pp. 143, 2020.

[4] Liu, Min. Application of Green Manufacturing Technology in Machining Process. Science and Wealth, vol. 12, no. 12, pp. 112, 2020.

[5] Yan, Lipeng. Application of Green Manufacturing Technology in Mechanical Manufacturing. Engineering Technology and Design, no. 36, pp. 682, 2019.