Mechanical Design and Mechanical Reprocessing Technology to Explore

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ABSTRACT: Mechanical design is the first step in machining, but also an important part machining. Good mechanical design can not only improve the performance of mechanical products, and also to ensure the quality of machinery. Machining and mechanical manufacturing rely on each other, complement each other. The development direction of the basic principles of modern mechanical design, mechanical design early in the design, program design, technical design, and mechanical design of mechanical design techniques are discussed. Then briefly introduces the mechanical reprocessing technology.

KEYWORDS: Mechanical design; Mechanical processing; Technology research.

1 INTRODUCTION

Mechanical engineering is related to the natural sciences as well as the theoretical basis of technical disciplines, and in order to practice with the production of technical experience, the actual mechanical problems in the development, design, manufacture, installation, use and repair process of research and solve applied science. The mechanical design of mechanical production as a first step which is not only an important part of mechanical engineering, but decides the most important factor in mechanical properties. Generally speaking, mechanical design means that according to the requirement of mechanical works, structure, motion, force and energy transfer mode, various parts of the material as well as shape and size, lubrication method conceived, analysis and operations, while being into specific description, and then will work as a mechanical manufacturing process based on its. Mechanical engineering as a more ancient discipline, should continue with today's advanced technology combine to continuously promote their own development, with the continuous development of science and technology, today's mechanical design and mechanical reprocessing technology has been rapid development of.

2 THE MECHANICAL DESIGN OF TECHNICAL INQUIRY

2.1 The basic principles of modern mechanical design

2.1.1 The quality assurance principles
Quality has always been the life of mechanical products, therefore, quality assurance is carried out the most important principles of product design. Quality of the product is mainly decided by the performance and reliability of the product, including its associated principles have rigidity principle, the principle of strength, reliability, stability and dynamic characteristics, and so on.

2.1.2 The principle function meet
Customers who purchased the product is purchasing the nature of its function, the function can reflect certain aspects of customer demand, and the purpose of the mechanical design is constructed to achieve some specific function mechanical products. If the product does not have the required functions, mechanical design on lose their intrinsic value, therefore, meet the basic principles of functional mechanical design.
2.1.3 Economic principles
Larger traditional mechanical design consumed raw, and is also relatively long design cycles, which repeatedly work more, resulting in a waste of more serious, and the requirements of the modern mechanical design products that have a relatively low development, manufacturing, use and maintenance costs.

2.1.4 The process of fine principles
Modern mechanical design should be based on high technology as its basic principles, the principles of good process requires mechanical audit can and relatively easily through the realization of the production process, which includes not only the manufacturability, but also includes testability, and so can be assembled.

2.1.5 The principle of sustainability
Performance behavior during the time of mechanical design products on the market should be carried out after comprehensive consideration, including environmental adaptability, environmental friendliness, disassembly, human-friendly, recyclable and so on.

2.2 Mechanical design
Design is a key part of the program among the mechanical design, mechanical design program design is also the soul, and its relationship with the mechanical design of the failures and successes, in program design this stage, you need to deal with the problem is relatively more, under normal circumstances, the process of mostly theoretical and practical contradiction between design mechanical design should not only among itself and machinery needed for consistent performance and functional requirements, but also should test those who know of machinery development and innovation comprehensive consideration, program design at this stage is the first step of the main design principle of the work to define, and then fully understand the basic structure of the machine, and then run the way of the mechanical design, followed by the mechanical components were selected and design, then the preliminary design engineering drawing and design program, the last of the above preliminary examination design were done.

2.3 Technical design of mechanical design
Among the technical design mechanical design this part, the technical requirements are very high. In the technical design of this stage, the main design drawings for the calculation and reconciliation, but should always be checked sketch diagrams and parts and comparative analysis, etc. In addition, it should be mechanical designs for each part of the design be very strict check, in this situation must not be allowed during the omission, in the event, it should be timely to do proofreading, at this stage, to be produced for some machinery products, it should also be based on the needs of some of the product itself design type.

2.4 Trends of mechanical design

2.4.1 Excellent performance-based
With the continuous development of science and technology, today's mechanical products are mostly required to achieve the best performance, and therefore, during the mechanical product design process, should make every effort to achieve the excellent mechanical properties of the product. Excellent mechanical performance of which mainly includes reliability design technology, compensation design, dynamic design, corrosion control design and technical design and so on.

2.4.2 Green design
With the continuous development of society, at this stage, environmental awareness has become increasingly popular, and the same for the mechanical design is concerned, it should be toward the green design concept of continuous development. For the mechanical design of the product should be simultaneously green and intelligent basis, on this basis, it should be based on the premise of the use of resources through advanced mechanical design technology to maximize resource utilization, optimal resource utilization configuration, in order to better achieve the recycling of environmental resources, should also introduce more advanced mechanical design concept.

2.4.3 To meet the fierce market competition design
The ultimate goal of all products formed are put on the market, and mechanical products are no exception. The market should have a certain competitiveness. Mechanical products should be based on the current market economy, in order to develop new design principles to create a new mechanical design technology, giving the product of advanced technology and functions. Among them, the technology-related competitive advantages include lower cost of production, product technology innovation, intelligent design and simulation design, etc., should be constantly on the mechanical design technology innovation, making the mechanical design products to more competition in the market direction development of.

3 THE ANALYSIS OF MECHANICAL REPROCESSING TECHNOLOGY
It refers to a process of machining a workpiece with a processing machine to shape, size and performance changes. Which according to the workpiece to be
machined temperature state can be divided into cold and hot processing. Among them, the cold generally refers to be processed at room temperature, and does not cause the workpiece chemical and physical changes. Thermal processing refers to higher than normal temperature, or processing area, usually causes the workpiece chemical and physical changes. Cold can be classified according to differences in processing methods can be divided into pressure processing and cutting. The thermal processing typically include heat treatment, forging, welding and casting.

3.1 Management of mechanical processing and manufacturing

Computer Management System for the mechanical processing and manufacturing, is the future direction of development. The organizational model as well as the development of innovative production mode, thus creating an updated management philosophy, in our country, some advanced management system is still relatively scarce, few companies capable of more advanced management, therefore, China should strengthen the machinery manufacturing process management mechanism.

3.2 Mechanical manufacturing design

Some developed countries have begun to adopt a more advanced design methods, but also constantly update the design data. With the development of computer-aided software application CAD technology, so most companies start from the mechanical manufacturing drawings. In China, the relative lack of this advanced computer software technology, and the application is not very extensive. Therefore, China's machinery processing and manufacturing should be moving in that direction.

3.3 Machining process analysis made

Manufacturing machinery should be based on high-precision machining and precision machining as the direction of its development. Some of the more advanced technologies, such as nano-processing technology, micro-processing technology, laser processing technology, etc., in the developed countries has been more widely used, and these high-end technology development in China will be strengthened.

4 CONCLUSION

With the continuous development of science and technology, mechanical design should also keep up with the pace of development of the times. And related mechanical designs of green design concept is also worthy of our attention. Mechanical design and mechanical manufacturing is particularly their technical requirements and the need, as a prerequisite for machining mechanical design, is a key part machining. Therefore, the mechanical design process should be in their early to good quality control, in the mechanical manufacturing process, you need more detailed step as its basis, and the quality, safety and other aspects of strict control, thereby producing high standards and high-quality mechanical products.

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