

Research on Physical Properties Testing Technology of Metal Materials



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Abstract

With the continuous development of my country's social and economic strength, all walks of life have developed more rapidly in the corresponding fields, and more and more attention has been paid to the in-depth research and testing of many industries, especially my country's industrial field. In the industrial field, the development of technology has promoted the research and development of new metal materials, but all metal materials will be tested on physical properties before they are officially put into use. Only when the metal objects are qualified can they be used in actual work, but in the actual application process, there will still be many problems, and because of the physical properties of the metal itself, not all metals can be detected, if these problematic metal materials are applied to the subsequent processing stage, then it will produce substandard products and induce safety problems.

Keywords

Metal materials, Physical characteristics, Detection technology

Introduction

Metal material is indispensable in the process of human civilization development and construction of important material, metal material in real-life application scope is extremely widespread, and also because of the characteristics of metal materials, that is in use process can through these features to test the quality of your goods, but with the continuous development of metal materials, Although new metal material can be applied in more areas of industry, have also started to can't detect the problem because of the physical properties, the use of material follow-up will bring great distress, resulting in a security class, in order to prevent this kind of situation, we should according to the specific situation to choose the corresponding detection method, Timely adjust the possible problems of metal materials.

1. Development and performance testing of metal materials

Metal material high importance to the development of the society, for the convenience of human life provides many, be applied range is very wide, mainly because the metal material with high elasticity, high strength, and physical properties such as high hardness, so many industries are need to use metal materials, these features can't be replaced by other substances, so to speak, in the application field has an important position of materials, such as aerospace and architectural engineering, the demand for metal materials is very large. But also because of the characteristics of metal material, is what makes this kind of material for the future development of broad prospects, stage of development in the future, whether governments or unit of scientific research institutions, orientation of metal materials will have a new cognition, metal material in the future will be combined with advanced technology, for social benefit as well as the corresponding enterprise benefit, can bring great improvement, so our government units and enterprises began to pay more attention to the recycling of waste metal.

In the process of testing the physical properties of metal materials, four methods are mainly used for testing: (1)Tensile testing, which uses the external conditions of high and low temperature and indoor temperature to place metal materials in a relatively stable temperature environment for testing, so as to detect the tensile strength of metal materials; (2)force bending detection, the focus of this method is the fatigue of metal materials, in the detection process to apply brute force to the metal, and then the bending material is detected; (3)Hardness detection, mainly using a variety of means to detect the hardness of metal materials, after different detection records for data comparative analysis; (4)impact detection, this step detection is also the last step, still need to use the temperature to observe the different changes of metal materials in different temperatures. These four detection methods are the main ones in use. In addition, there are many other detection methods, which are not mentioned here.

2. China's current detection technology development and future development direction

Physical examination scope is very broad, in different areas, used to detect is different, so the future detection technology will also presents different prospects for development, the basic physical properties of metal materials is the density of the material, material of close degree will greatly affect the quality of the material itself and the technical index.

Besides density detection technology, the metal material heat capacity measurement is one of the more common testing methods, mainly the sample placed in stable environment temperature, then suddenly to cool the material, when the temperature is lower than the physical function of cooling during hot furnace temperature and the heat transfer to the heated medium, According to the heat calculation of the medium in this process, from the point of view of the current detection technology, although this detection method is more common, but in the process of use, the possibility of failure is greater.

In the future, to the specifications of the products will have a higher standard requirements, the existing detection technology can satisfy the measurement requirements of the future, not necessarily because of the change of The Times, we most needed for the social development technologies are now back on information technology to achieve, so in such an environment, the development of information technology will have on the physical properties of the product testing technology bring far-reaching influence, And the actual experimental detection phase, the corresponding testing requirements will be a rising tide lifts all boats, as well as to the accuracy of the detection efficiency will put forward the new standard, therefore in the process of detection using advanced computer technology is bound to occupy a greater advantage, but it is undeniable that computer technology not only can satisfy demand in the physical properties of the metal material, Also can guarantee better detection effect.

3. Conclusion

To sum up, the development of metal materials have been affecting our country's social and economic strength, so to do a good job of detecting metal materials is very important link, the main points of the work in the test and the physical properties of the metal material, the staff should ensure the setting goals to achieve metal materials, effectively improve the quality of the products, and let the product in the use of the stage to play a maximum role.

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