

# The Application of Fiber Reinforced Plastic Ribs in Civil Engineering

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**ABSTRACT:** In the actual construction process, civil engineering will have plenty of material to use different materials bear different tasks. With the construction of civil engineering technology to improve and progress, all kinds of new materials continue to be applied to civil engineering construction and the fiber reinforced plastic is to improve the quality of construction and civil engineering structures stability of the important material. The following The fiber reinforced plastic to use in civil engineering started to explore and focus on the specific application content elaborate, designed to provide a reference for relevant technical personnel, and actively improve the level of popularity of fiber-reinforced plastic tendons, and promote the quality of civil engineering upgrade, to achieve the overall efficiency of civil engineering.

## Introduction

Fiber reinforced plastic is a kind of new high-performance composite materials, in line with the needs of the present stage of civil engineering construction. With the improvement of the construction of civil engineering construction technology and construction processes, civil engineering in the actual construction process, the need to constantly new materials and new technology for application to promote the quality of civil engineering construction has been fully improved. Moreover, it is functional and aesthetic requirements for civil engineering are also constantly change, through the promotion of the use of fiber-reinforced plastic ribs, prompting some of the carrying capacity of civil engineering structures, shear resistance, corrosion resistance, etc. be fully enhance the overall service life of civil engineering to achieve the effect of increasing, give full play to the functional value of civil engineering.

## The Relevant Overview of the Fiber Reinforced Plastic Ribs

Fiber reinforced plastic construction materials is a civil engineering construction stage is often used, can promote the overall construction project to enhance the efficiency and the level of construction, but also improve the overall quality of the projects, to promote civil engineering construction period be effectively improved. Fiber reinforced plastic is a reliable composite material, not only has the basic properties of fiber-reinforced materials, but also has basic properties of plastics and other base material, is a kind of performance reliability, production process is simple, strong carrying capacity, strength the characteristics of high material. The fiber reinforced plastic applied to the civil engineering, civil engineering structures can promote the level of effective improvement and increase the seismic capacity of civil engineering.

With fiber-reinforced plastic bars thorough and complete study of the progress of the preparation of fiber-reinforced plastics technology and production processes are fully optimized, fiber reinforced plastic range of applications also continue to increase. Moreover, the domestic

researchers also worked out a reasonable plan to meet the needs of civil engineering construction for fiber reinforced plastic prospect and application of space, civil engineering construction driven to enhance the efficiency and quality of construction.

Fiber reinforced plastic is the main advantage of the nature and value of the material itself. Good performance of fiber-reinforced material may change the traditional civil engineering some of the materials used to promote the carrying capacity of civil engineering can be enhanced to improve the level of civil engineering to see the doctor. Further, the fiber-reinforced material is subjected to the influence of temperature is not high, it can be applied to some special circumstances. And more than over steel and other materials, the manufacturing cost of a fiber-reinforced plastic tendons suitable performance, in line with the needs of the construction of civil engineering.

### **Analysis of the Application of Fiber Reinforced Plastics Ribs in Civil Engineering**

Fiber-reinforced material has a civil engineering application value and application prospect is very important to meet the needs of modern civil engineering construction, to promote the overall effect of the construction has been fully improved. In practice, civil engineering, the use of fiber reinforced plastic instead of traditional steel bar, change the direction of the construction of civil engineering.

In actual civil engineering, reinforced concrete structure is an important factor affecting the quality of engineering and construction efficiency. But reinforced concrete structures affected by material properties and mechanical properties such that the carrying capacity of reinforced concrete structures is not sophisticated enough to meet the different parts of the bridge engineering construction demand. Therefore, a reasonable selection of construction materials, and fiber reinforced plastic may be used, the fiber reinforced plastic instead of traditional steel, thus contributing to the mechanical properties and corrosion resistance of concrete structures has been fully improved, so that the concrete structure can be to meet the demand for more land bridge construction process. Fiber reinforced plastic in place reinforced concrete structure applied to the bridge construction project, it can effectively reduce the weight of the bridge project, to improve the reliability of the bridge. Moreover, the use of fiber-reinforced plastic ribs can effectively reduce the maintenance costs of the bridge, the bridge project to promote safe and reliable.

Geotechnical engineering is an important part of civil engineering, rock engineering in the actual construction process, will be affected by all types of natural and geological factors, leading to safety problems have occurred, in order to improve the reliability of rock needed science of construction material rock engineering selection. Especially in geotechnical engineering and other anchor bolt material. Under normal conditions, mainly steel anchor geotechnical engineering geotechnical reinforcement, but the steel susceptible to erosion environment, long past, if you can not be effectively controlled, it will inevitably lead to security incidents, affecting the overall geotechnical engineering Safety. With fiber reinforced plastic instead of geotechnical engineering reinforcement bolt, bolt promote corrosion resistance and durability can be improved, to avoid the problem of erosion of geotechnical anchor, prompting bolt function more reliable and reduce rock soil engineering safety problems occur.

In view of the special circumstances of marine engineering, marine engineering focus on some of the steel will be the focus of marine salt erosion, making the fast aging rate of steel, resulting in service life of steel is low. Only steel pipe embalmed, can improve the service life of steel, but still can not meet the actual needs of marine engineering. Marine engineering of fiber reinforced plastic ribs applied to marine engineering in order to effectively control the corrosion of the ocean, the ocean to promote the quality of engineering can be effectively improved. Moreover, by using a

fiber-reinforced plastic ribs, can effectively reduce the use of steel, saving deposits of metal loss, promoting sustainable progress.

Geotechnical engineering, special projects need to constantly have new materials and new technology to join, especially in some cold areas of civil engineering, high material requirements required material has high corrosion resistance. Fiber reinforced plastic bars to meet the actual needs of the project, improve construction quality. In order to avoid the occurrence of natural disasters, need a reasonable pre-stressed bolt support for application, fiber reinforced plastic can be used to improve the corrosion resistance of support and reliability.

## **Conclusion**

Civil Engineering is social progress and stability of important projects in the actual civil engineering construction process, the need for a reasonable choice of construction materials. In order to improve the stability and reliability of the project, you can use the new fiber reinforced plastic instead of conventional steel, which effectively improve the corrosion resistance of civil engineering and aging resistance, prompting the length of service of civil engineering can be effectively improved to achieve civil engineering economic and social benefits.

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