Introduction of Aluminum Formwork Renovation

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Chapter 1 Aluminum formwork refurbishment process

As an important material in modern building construction, aluminum formwork is highly favored for its durability and reusability. However, with the growth of the use of time, the surface of aluminum formwork often accumulates stains, coating aging and even rust, which not only affects the aesthetics of the formwork, but also may reduce its use performance and safety. Therefore, the refurbishment process of aluminum formwork is particularly important. This process can not only effectively restore the original state of aluminum formwork, but also extend its service life and reduce construction costs. From the meticulous preparation before refurbishment, to the fine treatment in the refurbishment process, to the strict quality inspection and maintenance after refurbishment, each step is crucial, which together constitute the complete system of aluminum template refurbishment process.

Chapter 2 Preparation for refurbishment

Pre-refurbishment preparation is a fundamental part of the aluminum formwork refurbishment process, and its importance cannot be overstated. This stage of work directly affects the success of the subsequent refurbishment effect, as well as the durability and service life of the aluminum formwork. This link mainly includes two aspects of aluminum template cleaning and inspection and refurbishment material preparation.

2.1 Aluminum formwork cleaning and inspection

Before renovation, the aluminum template needs to be thoroughly cleaned first. During the cleaning process, special cleaning agents should be used, and the dirt,

cement paste and other impurities on the surface of the template should be completely removed by means of high-pressure water gun or mechanical brushing. After the cleaning is completed, the aluminum template should be comprehensively inspected to record the degree of wear and tear, deformation, cracks and rust and corrosion of the template. During the inspection, every corner and edge of the formwork needs to be scrutinized to detect any possible damage or defects. Once any problems are found, they should be recorded immediately and repaired or treated in the subsequent refurbishment process.

2.2 Preparation of refurbishment materials

According to the inspection results, appropriate renovation materials are prepared. Patching agent is used to repair the cracks and damages on the surface of the formwork; curing agent is used to enhance the hardness and abrasion resistance of the formwork; anti-corrosion coating is used to improve the corrosion resistance of the formwork and prolong the service life. At the same time, it is also necessary to prepare the necessary renovation tools, such as sandpaper, sanding machine, spray gun and so on. These tools will be used to sand, repair and paint the formwork during the refurbishment process. When preparing the refurbishment materials, you need to make sure that the materials used match the material and purpose of the aluminum formwork. Different aluminum formwork may require the use of different refurbishment materials and treatments.

Through the above steps, the aluminum formwork can be effectively refurbished and treated to give it a new look and improve its service life and economic benefits. At the same time, it can also reduce the impact on the environment and realize sustainable development.

Chater 3 Surface treatment of aluminum formwork

Aluminum formwork surface treatment is a key link in the aluminum formwork refurbishment process, which is directly related to the adhesion of the coating to the substrate and the service life after refurbishment. This step consists of a series of

processes designed to make the surface of the formwork achieve the best coating condition.

3.1 Removal of old coatings and corrosion

Use sandblasting or mechanical grinding to completely remove the old coating and rust layer from the surface of the aluminum formwork. The purpose of this step is to provide a clean, rough surface for subsequent coating construction and to enhance the bonding of the coating with the substrate. Through professional sand blasting equipment, sand particles are sprayed onto the surface of the formwork at high speed, and the impact force can effectively strip the old coating and rust layer from the surface of the formwork. Mechanical sanding is also an effective way of removal, by using tools such as angle grinders and sandpaper to manually or automatically sand the stencil surface.

3.2 Surface sanding and finishing

After removing old coatings and rust, the surface of the formwork is further sanded and dressed. Use sanding machine or hand sanding tools to sand the surface to smooth and eliminate the burrs and edges produced during the sanding process. At the same time, difficult areas such as edges and corners of the formwork are meticulously sanded to ensure uniformity across the entire formwork surface. This step involves not only the flatness of the surface, but also the roughness of the surface. In order to increase the contact area between the coating and the surface of the formwork and improve the bonding force between the coating and the substrate, the surface needs to be roughened appropriately. Through sanding and finishing, the surface of the stencil is brought to a moderate roughness that facilitates the adhesion of the coating without affecting the appearance of the coating.

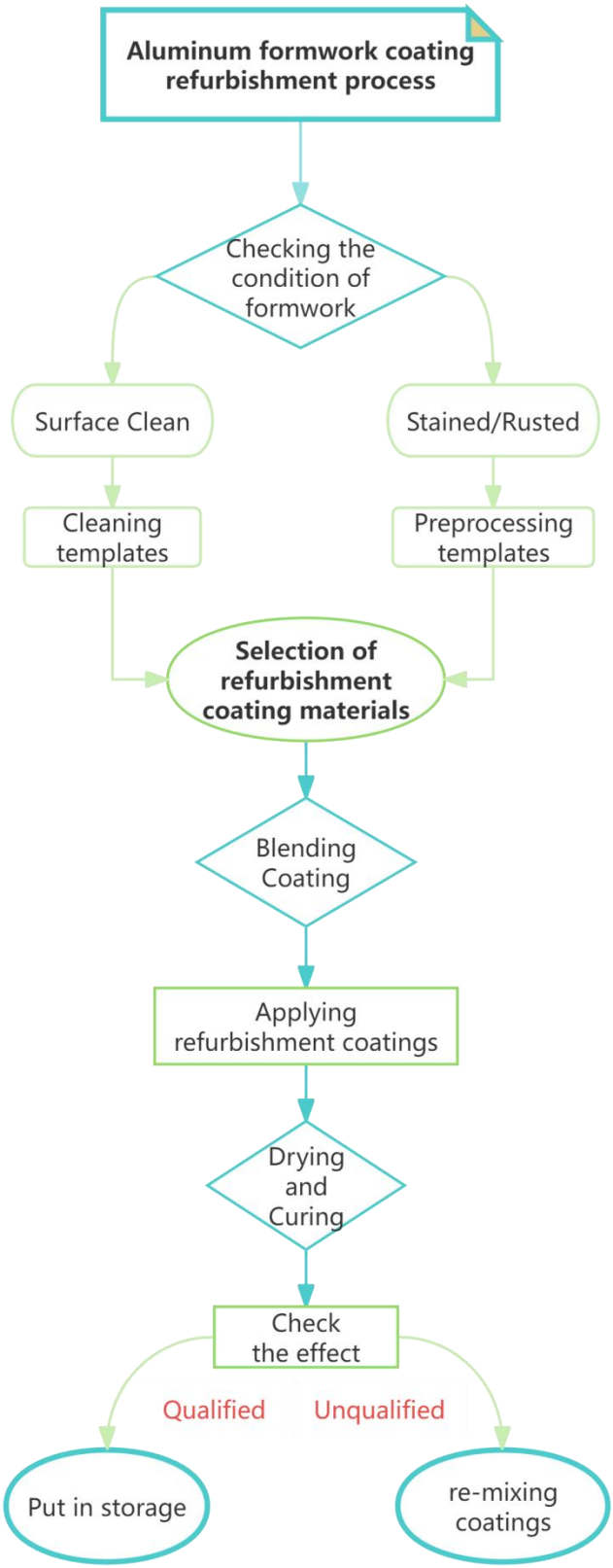
3.3 Pre-treatment and anti-corrosion treatment

Pretreatment and antirust treatment of aluminum formwork before coating construction. Pretreatment usually adopts phosphating treatment or chroming

treatment to improve the activity and adhesion of the surface of the template. Antirust treatment adopts special antirust agent or antirust paint to coat or spray the surface of the template to form a dense antirust layer, which effectively prevents the template from rusting in the process of use. Through this series of pretreatment and anti-rust treatment measures, it can ensure that the aluminum formwork has better durability and anti-corrosion performance after renovation.

3.4 Coating Renovation

1. Coating renovation is the last part of the aluminum template renovation process, which not only determines the appearance quality of the renovated template, but also directly affects the service life and performance of the template.
2. Before coating renovation, the surface of the template must be thoroughly cleaned to remove oil, dust and other impurities that may affect the adhesion of the coating.
3. After the cleaning is completed, it is necessary to select the appropriate anti-corrosion coating and construction technology for coating according to the specific use environment and functional requirements of the template.
4. In the spraying process, the thickness and uniformity of the coating need to be strictly controlled to ensure that the coating and the template surface has good adhesion and consistent appearance.
5. Finally, after the coating renovation is completed, the template needs to be properly dried naturally or dried to improve the hardness and abrasion resistance of the coating and extend the service life of the coating.



Aluminum formwork coating refurbishment process

Chapter 4 Quality Inspection and Acceptance

Quality testing and acceptance is a key step in the whole renovation process. The quality of aluminum formwork renovation directly affects the subsequent use effect and safety, therefore, quality testing and acceptance is crucial. The quality inspection of aluminum formwork renovation mainly includes three aspects: appearance quality inspection, functional performance inspection and acceptance standard and process.

4.1 Appearance quality inspection

Quality inspection of appearance is a crucial step. In this part, we mainly check whether the coating is uniform, flat, without leakage, flow and other phenomena. At the same time, observe whether the coating color is consistent and whether the gloss meets the requirements. For formwork with appearance defects, it should be repaired or replaced in time.

4.2 Coating thickness and adhesion detection

Adopt professional testing instruments to test the coating thickness and adhesion of the refurbished aluminum template. The coating thickness should meet the requirements of relevant standards to ensure that the coating has sufficient thickness and strength. The adhesion test adopts the method of scratching or pulling apart, etc., in accordance with the relevant national or industry standards, to check whether the coating and the substrate are firmly bonded. For the template with insufficient coating thickness or unqualified adhesion, it should be reworked in time.

4.3 Functional performance testing

Functional performance testing is one of the important links in the quality testing of aluminum template renovation. This stage of the test is mainly to confirm that the template after renovation treatment, its hardness and wear resistance and other physical properties whether to meet the preset standards. Through the functional performance test, it can ensure that the template can meet the use requirements after renovation and improve the use effect.

4.4 Evaluation of renovation effect and acceptance criteria

The assessment includes performance indexes such as corrosion resistance, weather resistance and abrasion resistance of the coating, as well as the appearance quality and dimensional accuracy of the formwork. According to the evaluation results, combined with the relevant acceptance standards, the renovated formwork is accepted. Formwork that meets the acceptance criteria can be put into use; for formwork that does not meet the acceptance criteria, further rework or scrapping is required. In the evaluation process, we will formulate the corresponding acceptance standards according to the actual use environment and engineering requirements of the aluminum formwork.

In summary, the aluminum formwork refurbishment process is a complex and detailed process involving multiple links and steps. Through the comprehensive treatment of pre-refurbishment preparation, refurbishment processing steps, quality testing and acceptance, as well as post-refurbishment maintenance and repair, the utilization rate and service life of the aluminum formwork can be significantly improved, the construction cost can be reduced, and the sustainable development of the construction industry can be contributed to.