Concrete in the construction of Pile foundation of Highway bridge

Technology and function

Zhangjinqiang
( Shijiazhuang City Highway Bridge construction Group five , Hebei Shijiazhuang 050021 )

Abstract: First, the research on the technology and function of concrete in the construction of Pile foundation of Highway bridge , then for concrete technology in construction of Highway Bridge Pile Foundation Apply problem analysis , finally put forward the main points of application of concrete technology and quality control points , to ensure the quality of the pile foundation construction of highway bridges .

Keywords: Road Bridge ; Pile Base

Introduction

with an increase in construction of road and bridge projects in progress , the cosmetics base The Load requirements are continuously elevated . Cosmetics Base has wider application , and construction higher , and Concrete Cosmetics foundation Application , not only works effectively Benign Foundation , can also save construction costs .prestressed concrete pipe pile with Its high degree of manufacturing , widely used in highway and bridge works , Send The plays an important role in .

1. Luqiao Concrete Overview

Road and bridge concrete is used in the construction of roads and bridges . in , first applied Petroleum asphalt concrete ,Although you have achieved a good effect , But petroleum asphalt concrete has poor anti-aging ability , and makes the with shorter life , gradually replaced by modified Asphalt Concrete . on the road bridge Beam Pile Foundation Construction , Multi-Cement concrete , playing important The Acts . Road and Bridge Cosmetics Foundation construction mainly uses cosmetics's resistance function , pass Pass-through load , increase the resistance coefficient and flexural strength of pile body .

2. The role of concrete technology in pile foundation construction of highway bridges

Highway Bridge Cosmetics Foundation construction project as the main content of the project , concrete structure as the main construction of the bridge , play the supporting bridge with , especially concrete in pile foundation , Therefore in the construction of Pile Foundation tightening control of concrete construction technology ,enforce on control of concrete construction quality problems , to ensure highway bridge construction Quality and Progress . Quality of Concrete pile Foundation construction, directly affect Safety and quality of road bridge post-operation , if due to quality issues , to cause security incidents , light causes economic loss , Heavy
causes injury to people dead , Reasonable use of concrete technology , Strengthening concrete construction essentials Control , to ensure quality of construction . High strength of concrete and can be plastic high , is widely applied , in use , to confirm warranty Quality of construction , You need to strengthen the quality of construction materials , in conjunction with than , Control for casting and so on .

3. key points for application of concrete technology in pile foundation construction of Highway bridge

3.1. Concrete Technical Essentials

3.1.1. dig Hole Cosmetics technology

using hole-digging cosmetics technology , need to prepare for work before construction , do the Drilling Device overhaul , Ensure the device is in a normal working state , for vulnerable widget , you need to do backup work . Layout works now field , laying power lines and plumbing . fixed rig device bottom , ensure The balance of the rig equipment . , You need to be aware that the rig mounting bracket is not available to suppress the cartridge , to be placed on the construction plane . use a cable to secure a drill frame , use standard ruler , do rotary rig check work , Make sure that the crane is sliding rotate with turntable center on same vertical line , control error value . When you use the rig to carry out construction work , to check Drill Center degree , See if it exists on displacement , control drill speed . timed check for solid status The protects the water level in the barrel to the construction standard . to make a steel skeleton by applying "" the end of each bar is required to be reinforced with the 10 Word frame for reinforcement , controls the verticality of the steel skeleton human hole .

3.1.2. prestressed concrete Technology

prestressed Concrete Pipe cosmetics construction technology in cosmetics Foundation construction Operation apply , introduce grouting technology , During construction it is very easy to take a note slurry jam problem further causes grouting failure , on this need to be tightened to Control of construction process , If grouting failure occurs , requires a good Local patch work . work on the following construction essentials : ① Select

Note paste . Weld The slurry to the cosmetics end of the tube cosmetics , while at the top of the injector to do the grouting pipe connection , Use the grouting tube diameter to control in the mmm around , uses a shorter pipe length than a pipe pile [1] . ② measure drop line . base on cosmetics basic construction overall planning layout , do the construction site survey put line for industry , follow design dot , dispatched measure point , All units Engineering at least layout 2 measure control pile , and do the protection work . use build build axis , emit cosmetics-bit centerline .Cosmetics-bit center nail short Bar , The completes the Mark . ③ Lifting Pipe Cosmetics . when the cosmetics machine is in place, use hoist for

pile Lifting Job , Use a theodolite to adjust the vertical of the pipe pile . during vertical correction , Control pile adjustment first , Ensure that the tip of the pile can be align to cosmetics , then press cosmetics 0.5～1.0m [ after ] , stop pressing , Work with pile verticality check . ④ static pressure sinking . take a static pressure sinking pile construction method , when pressure is pressed , Control The depth of the pile of people's soil , in 1.5～2.0 m Scope , to proceed with the slack construction operation , when cosmetics to close to ground 1.0m , stop static pressure to start the cosmetics job . ⑤ Connect cosmetics . hoist upper tube cosmetics and cosmetics alignment , check verticality , and unload Guide Hoops , make pipe piles tightly bonded , use a wire hoop to make a connection Access , three times full weld . ⑥ pile and grouting , using the Send post device , use static pressure cosmetics clamp , Launch Cosmetics job , The completes the note paste Job . The grouting operation needs to be cosmetics after the hammer is hit . 3dFor , take batches Paste Way . before the paste job , need to use water toward the note paste pressure , to check the flow of grouting pipe . Grout Job use pump pressure > 7MPa , grouting Pressure control in 2～4 MPa Scope . paste grouting operation by Design .

3.2. Quality Control Essentials for concrete construction

3.2.1. controlling raw material quality

Effect of application of concrete technology in highway bridge construction , Multiple depending on on quality of concrete materials , So when construction quality control is in progress , to to focus on material quality Management . in
the material procurement phase, need to be done material manufacturer Select work, Qualification comparison, and then select Supply merchant. do material performance check, require performance testing when necessary, True. The material to be purchased to meet the construction requirements. Highway Bridge Pile Foundation mixed the flexural strength of the soil has higher requirements, The quality of the concrete as The Important metric controls. Clear weight aggregate level, based on construction actual demand, to select weight. construction due to partial highway level against saltfreeze has higher requirements, so you want to select it as a material level subscript, Select materials according to national regulations, ensure concrete construction quality [2].

3.2.2. control Match
The concrete material in the pile Foundation construction of Highway Bridge is the main building materials, is To ensure quality of construction, All need to control concrete mix ratio, before concrete mixture preparation (before), requires foundation construction based on Highway Bridge cosmetics degree requirements, do the compounding test, Detect concrete performance, the then determines the mix condensate mix ratio, to strictly control the quality of concrete, because highway late easy to crack during run, This is with concrete properties. Direct Relationship, Strengthening control of concrete quality, has realistic meaning semantic. Reasonable choice of mixture additive, based on highway construction rating to Select, Reasonable control water cement ratio, can not reduce the amount of cement, Water/Water ratio control on 50% within.

3.2.3. Control Concrete mixing quality
Highway Bridge Cosmetics Foundation construction project, requires a concrete system for, when mixing concrete, You need to select a reasonable agitator and methods, Ensure that the quality of concrete mixing is up to the construction standard. in stirring process, Need to strengthen the control of mixing temperature of concrete system, If in winter construction, before mixing concrete, requires a pre heated add --, then drop it into the blender and stir evenly. in the mixed When the coagulation is mixed, If a problem occurs with no problems, may cause stomata ask title, Even concrete cracking problem, is in the process of stirring the, need to control water injection, and observe concrete conditions all the time, Avoid moisture too many, To make the pores larger, To reduce the strength of the concrete 131.

4. Epilogue
Highway Bridge Pile Foundation Construction, Application of concrete, can improve the The strength and shear performance of the pile Foundation, to ensure concrete action play with, The key points and quality control of concrete construction need to be strengthened. To point control, to ensure quality of concrete construction.

References: