

HQS-Super300 huaqiansu

——Special for Lean manufacturing of ordinary silicon cement-based ultra early strength grouting material.

Uses

HQS-Super300 Huaqiansu is applicable to the preparation and production of special anchoring materials (nail anchoring agent) for the installation of railway sleepers, special grouting materials (bearing grouting materials) for the installation of pot type rubber bearings of highway bridges, special emergency repair materials for the foundation collapse of municipal road inspection wells (municipal inspection well collapse grouting materials), special grouting materials for the rapid installation of bridge Expansion joint (bridge Expansion joint grouting materials), etc.

Advantages

■ **High fluidity:** Gives high grout fluidity with low water/cement ratio, thus making placement or injection of the grout easy.

■ **Expansion rate:** Gaseous expansion system compensates for plastic shrinkage and settlement in properly designed cement grouting material.

■ **High early strength:** composition allows high early strength development in grouts, without the use of chlorides.

■ **Stability:** No metallic iron content to corrode and cause staining or deterioration due to rust expansion in the grout.

■ **Impermeability:** reduced water/cement ratio mixes in the grout mix ensures low permeability and long term durability in service.

■ **High strength and stability:** It can maintain the stability of 28 day strength of cement, mortar, and concrete without shrinkage.

■ **Winter construction:** Suitable for winter construction under -10 °C ambient temperature.

Dosage

The dosage is 5.0% of the weight of cement. If it is necessary to further shorten the setting time and accelerate the hardening rate, the dosage can be increased appropriately.

Formula Technology of Ultra Early Strength Grouting Materials

■ Setting time and hardening rate

□ **Temperature impact:** The effect of HQS-Super300 Huaqiansu on the setting time and hardening rate of Portland cement is greatly affected by environmental temperature changes, especially the significant changes in strength values within 1-12 hours.

□ **Large material impact:** The quality of cement and sand from various regions and manufacturers varies greatly, which directly affects the setting time and hardening speed.

□ **Impact of water addition:** Excessive water consumption will prolong the

setting time and reduce the hardening rate.

■ Typical Applications

□ According to the current industry standard JT 391-1999<Specification for Pot Rubber Bearings of Highway Bridges> , <Interim Technical Conditions for Pot Rubber Bearings of Passenger Dedicated Line Bridges>-<Interim Technical Conditions for Cylindrical Steel Bearings of Passenger Dedicated Line Bridges> and TB/T 2093-2002<Technical Conditions for Absorbent Anchorage Package>.The formula for preparing and producing fine aggregate super early strength grouting materials such as special grouting materials for installation of bridge pot type rubber bearings, special grouting materials for anchorage of railway sleeper studs, special grouting materials for rapid installation of bridge Expansion joint, and special grouting materials for foundation collapse of municipal road inspection wells is shown in Table 1.

Table 1 Production Formula of Fine Aggregate Ultra Early Strength Grouting Materials (kg/t)

P. 042.5 Ordinary Portland cement/kg	Φ0.16~4.75mm graded quartz sand/kg	HQS-Super300 hualiansu/kg	recommended water consumption/kg
400	600	20	125-135

□ Formulas of coarse aggregate super early strength grouting materials such as special grouting materials for rapid installation of bridge Expansion joint and special grouting materials for foundation collapse of municipal road inspection wells are prepared, as shown in Table 2.

Table 2 Production Formula of Coarse Aggregate Ultra Early Strength Grouting Materials (kg/t)

P. 042.5 Ordinary Portland cement/kg	Φ0.16~4.75mm graded quartz sand/kg	Φ5-16mm gravel/kg	HQS-Super300 hualiansu/kg	recommended water consumption/kg
---	---------------------------------------	----------------------	------------------------------	-------------------------------------

300	450	250	15	100-110
-----	-----	-----	----	---------

Installation and construction technology of bridge basin type rubber bearings

■ Fixed support

First install the pot-type rubber bearing at the beam bottom (see the figure below), Then hoist the beam body in place and make temporary support. Adjust to the design elevation, the bottom of the bearing is about 20~30mm from the top of the pad stone.



■ Installation and formwork erection

Set up "回" formwork around the pad stone top support. (see the figure below)



■ Grouting

Pour the mixed bearing grouting material from the bottom center of the bearing to the reserved hole and the bottom surface of the bearing, the grouting material shall be about 10mm higher than the bottom of the bearing. The

temporary support and formwork can be removed after the grout hardens to the design strength.



Construction technology for replacing individual spike

■ Take out the old spike

Take out the invalid old spike, clean and wet the spike hole.

■ Place anchor frame

Place the anchor frame into the hole, and the opening of the anchor frame locating plate faces the sleeper shoulder.

■ Mix

Pour 2/3 of water along the edge of the mixing container and mix it with some anchoring materials, Then pour the remaining 1/3 water and anchoring materials into and mix them into a uniform slurry.

The reference dosage is about 0.4kg/hole.

■ Grouting

Pour the anchoring slurry into the reserved hole from the middle of the anchoring frame until it is about 20mm from the hole top.

■ Insert spike

After the anchoring slurry is poured, the insulating bolt spike shall be inserted as soon as possible to make the round table fall on the positioning plate of the anchoring frame and straighten it.

■ **Clean appearance**

Use a slurry scraper to scrape and flatten the spilled anchoring slurry, when the slurry is insufficient or insufficient, it shall be filled up.

■ **Install fasteners**

After anchoring for 30min, the fastener can be installed. Tighten the nut by hand first. After 60 min, the nut can be slightly tightened with a T-wrench. After 24h, it can be retightened to the specified torque.

Construction Technology for Anchorage of Railway Whole Sleeper and Track Nail

■ **Clean reserved holes**

Remove dust and sundries in the reserved hole.

■ **Place anchor frame**

Place the anchor frame into the hole, and the opening of the anchor frame locating plate faces the sleeper shoulder.



■ Mix

Pour 2/3 of water along the edge of the mixing container and mix it with some anchoring materials, Then pour the remaining 1/3 water and anchoring materials into and mix them into a uniform slurry.

The reference dosage is about 0.4kg/hole.

■ Grouting

Pour the anchoring slurry into the reserved hole from the middle of the anchoring frame until it is about 20mm from the hole top.



■ Insert spike

After the anchoring slurry is poured, the insulating bolt spike shall be inserted as soon as possible to make the round table fall on the positioning plate of the anchoring frame and straighten it.



■ Clean appearance

Use a slurry scraper to scrape and flatten the spilled anchoring slurry, when the slurry is insufficient or insufficient, it shall be filled up.



■ Replace

It can be used 24 hours after anchoring. If conditions permit, appropriate amount of water can be sprayed for curing within 1-3 days after anchoring.



Construction technology of bridge Expansion joint installation

■ Clean the reserved slot

Check the width, depth and embedded reinforcement of the reserved groove to ensure that they meet the requirements. Then, remove dirt, dust and sundries from the notch.



■ Placing expansion joints

Take the asphalt road surface on both sides as the elevation, place the expansion joint in the notch, and the top surface is the same elevation as the road surface. Adjust the position of the telescopic device to meet the design requirements.



■ Welding expansion joint and reinforcement on bridge

Connect the anchor bar on one side of the expansion device with the embedded reinforcement of the reserved slot and weld it at intervals before welding the other side. Remove the clamp and weld the rest of the unwelded anchor reinforcement and embedded reinforcement.



■ Install template

The formwork shall be installed and the foam board shall be filled to ensure that there is no mortar leakage when pouring concrete.

■ Grouting

Clean and flush the slot, cover the concrete pavement on both sides of the slot with plastic cloth, and pour the mixed municipal emergency repair materials.



■ Curing

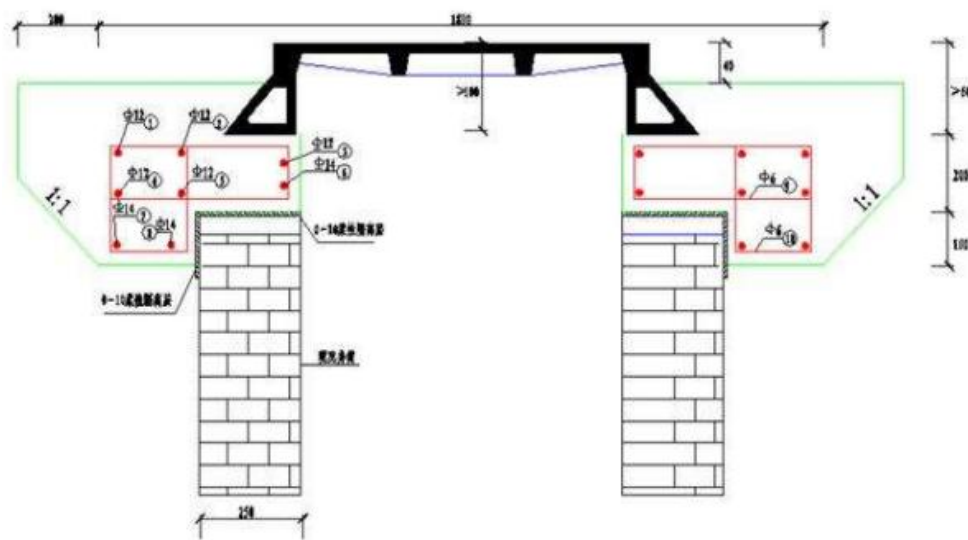
After pouring, cover the surface and spray water for curing after its final setting. After hardening, insert the sealing tape of the expansion joint.



Construction technology for emergency repair of municipal inspection well foundation collapse

■ Inspection well structure

The inspection well is composed of well cover, well base, well chamber, etc. (see the following figure) .Check the crack, damage, collapse, subsidence and other common quality problems of urban management around the manhole cover (100-350mm).



■ Clean up the collapsed part

Site inspection, determination of construction scheme and delimitation of excavation size. Excavate and clean the loose part around the well cover.



■ Installation of well base

Install the well base and cover, and adjust the height to be the same as the

surrounding road surface.



■ Grouting

After wetting the base, the mixed municipal emergency repair materials shall be poured at one time, trowelled and polished, covered and watered for maintenance for about 2-4 hours, and open for traffic.



Construction technology for rapid reinforcement of municipal inspection well foundation to prevent sinking

■ Foundation excavation

Site inspection, determination of construction scheme and delimitation of excavation size. Generally, the excavation size is 2.2m in diameter at the upper mouth, 1.8m in diameter at the lower mouth and 0.4m in depth.

Use special hole-forming machinery to excavate and clean the asphalt concrete and lime-fly ash structural layer around the well cover to ensure the base is solid.



■ Install isolation device

Cut the felt into a round strip with a width greater than $\frac{1}{2}$ of the shaft width and lay it on the shaft.



■ Install template

Check the masonry quality of the shaft and the roundness of the wellhead, spread the folded formwork along the inner wall of the shaft, adjust the elevation of the formwork with a double cross line, and screw the jack screw to fix it. Install the ladder, insert the upper and lower plug-in plates tightly, paste the sealing strip, and place the reinforcement cage.



■ Installation of reinforcement cage

After the reinforcement well ring is installed in place, recheck the formwork elevation with double crosshairs, place the three screw welding gaskets downward

and the long wire upward on the shaft, weld firmly with the reinforcement cage, and ensure that the screw is vertical.



■ Height adjustment

Install the lower nut and gasket on the bolt for height adjustment, install the well cover and the upper gasket and nut, adjust the precise elevation and position with double crosshairs, and then tighten the nut.



■ Grouting

After wetting the base, pour the mixed municipal emergency repair materials at one time, and check the position and elevation of the manhole cover. Plaster and polish, cover and spray water for 2 to 4 hours, remove the formwork or proceed to the next process.



Packaging, storage and transportation

The packaging specification of this product is 20kg/bag, or 2.0kg/bag.

This product should be stored in a dry and ventilated environment to avoid rain, water, moisture, and sun exposure. The unopened shelf life is 12 months.

This product is nonflammable, non-explosive, non-toxic and tasteless, and does not contain heavy metals, halogenated hydrocarbons, benzene series, formaldehyde, VOC and other harmful substances. It can be stored and transported as general goods.

Statement on data and other recorded contents

- The data recorded in this document are based on typical experimental values, so there is no guarantee for the recorded content.
- Before use, please confirm the detailed use method and precautions according to this information and product safety data.
- When using, your company must carry out a prior test to confirm whether it meets the use purpose and safety.
- The contents of this document are subject to change without notice.



Beijing Huaqian New Technology Co., Ltd

Address: 35 Chaoqian Road, Changping District, Beijing
National University Science Park of Beijing University of Chemical Technology
website: www.line365.com.cn
Telephone: +86-10-80770130