



Soft Foundation In-situ Solidification System



Anhui Motek Construction Machinery Co., Ltd.

www.motek.cn

ABOUT MOTEK

Anhui Motek Construction Machinery Co., Ltd. is located in Hefei, Anhui. With over 20 years of experience in attachments R&D and manufacturing, we stand out as China's leading high-end attachment manufacturer. It is a national high-tech enterprise and a professional company integrating R&D, production, sales, leasing and technical services of construction machinery attachments.



MOTEK focuses on the R&D and production of construction machinery attachments such as crusher buckets, screening buckets, soil improvement products and drum cutters. We have formed a sales and service network all over the world with rich industrial experience in environmental remediation, solid waste disposal, in-situ solidification, demolition, dismantling and other fields.

MOTEK has a professional soft foundation in-situ solidification construction team. It has completed more than 4 million m² of solidification project, and is one of the largest and most professional construction teams in China.

Through our company's independently developed innovative patented technologies such as alloy blades, special material blades, drive systems, hydraulic control systems, and years of iterative optimization, our products have excellent stability, reliability, and cost-effectiveness. At the same time, our company can provide customized services based on customer requirements and actual working conditions to satisfy different customers.



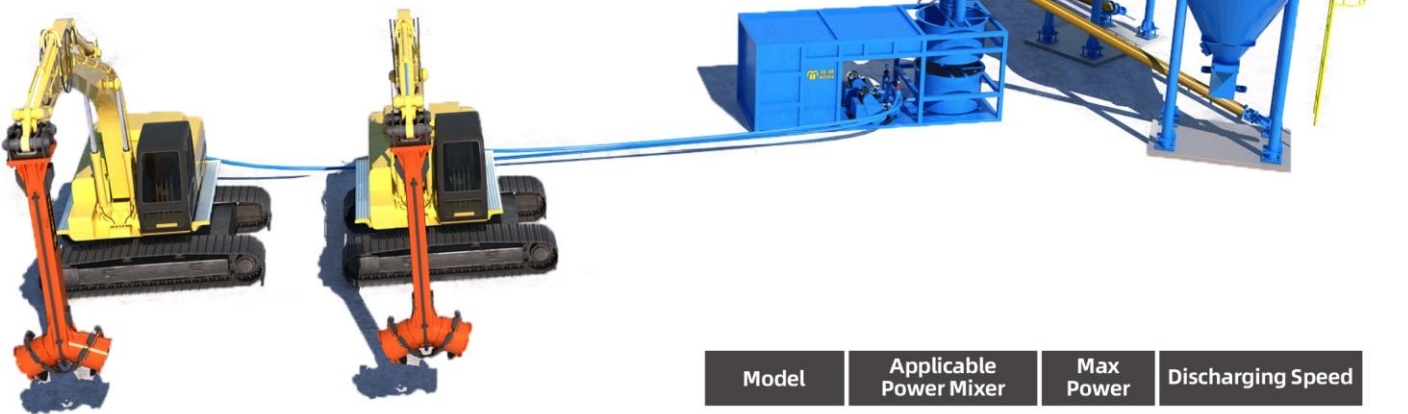
WORKING PRINCIPLE OF MOTEK SOIL STABILIZATION SYSTEM

MOTEK sludge in-situ stabilization system consists of a power mixer, a medium or large excavator, an intelligent control center, and a solidifying agent storage tank.

The intelligent control center adopts a PLC control system. After setting the parameters, the intelligent control center automatically loads solidifying agent in the storage tank, automatically mixes, slurries, stores, and automatically records the solidifying agent addition time and usage.

The solidifying agent slurry is quantitatively delivered to the front end of the power mixer through a slurry pump. The power mixer uses the hydraulic power and high mobility of the excavator to fully mix and stir the solidifying agent slurry with the soft foundation soil to achieve the purpose of strengthening and solidifying the soil.

Replacing the solidifying agent with a soil remediation agent can achieve in-situ contaminated soil remediation.



Model	Applicable Excavator(MT)	Working Depth(M)	Working Efficiency(m ³ /h)
MT-200	20-25	1-3.5	40-70
MT-250	25-30	1-5	40-70
MT-300	30-36	1-8	50-90

Features of MOTEK Power Mixer

- 01 The hydraulic motor and hydraulic control valve core of MOTEK power mixer are both from international first-line brands, with stable and reliable quality.
- 02 It meets the high-intensity and high-complexity work very well, even continuous operation of 24 hours without stopping.
- 03 The unique shape design ensures better soil penetration when operating. The mixing blades are made of high-strength wear-resistant steel, with high strength and long service life.
- 04 The two-way rotation function can realize the insertion and extraction of two mixing operations to ensure the best mixing effect.
- 05 Automatic speed regulation function, slow mixing of hard mud, fast mixing of soft mud, automatic sensing, automatic speed regulation, and improved work efficiency.

Model	Applicable Power Mixer	Max Power	Discharging Speed
HT-250	MT-200	80KW	90-250L/min
HT-320	MT-300	100KW	118-320L/min

Features of the Intelligent Control Center

- 01 The intelligent PLC control system, according to the customer's construction conditions, inputs the corresponding parameters, and the system automatically loads, weighs, mixes and makes slurry, and delivers slurry agents according to the parameter settings.
- 02 An intelligent PLC control system can carry two power mixer, reducing customer investments and improving operating efficiency.
- 03 Adopting a high-pressure mud pump, the maximum delivery distance can reach 700 meters, reducing the relocation of the solidifying agent storage tank and improving economic efficiency.



APPLICATION

01 / Road Construction and Foundation Construction

The bearing capacity of the subbase of highways, national roads, municipal roads, construction access roads, etc. is insufficient. The subbase can be solidified with a solidification depth of 1-5 meters. Soil solidification can avoid excavation and replacement, which is low-cost and more environmentally friendly.

02 / Wharf Construction, Site Solidification

Wharf heavy cargo storage yard, parking lot, stockpile yard, drilling well site, production and processing plant and other site solidifying construction.

03 / Pipeline Trench Anti-collapse Solidification

Large-scale oil pipelines, natural gas pipelines, and other pipelines always pass through silt land. There is no need to dig and transport the silt. Just solidify the silt, then dig it, and then solidify it and backfill it.

04 / Solidification of Sludge Pools, Sealing and Solidification of Tailings Reservoirs

Solidification and backfilling of domestic sludge; sealing and solidification of tailings reservoirs, after treatment, the surface is covered with planting soil or solar panels are installed for photovoltaic power generation.

05 / Riverbed Solidification

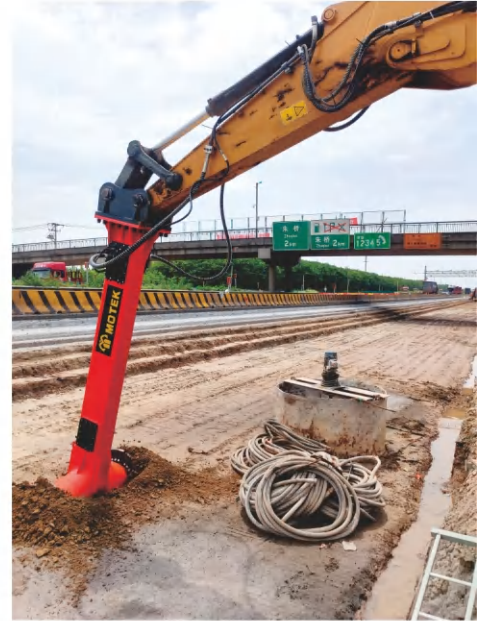
The riverbed silt can be solidified and then excavated and transported out; the riverbed can also be solidified in situ to solve the problem of eutrophication of soil and water.

06 / Landfill Pollution Remediation and Solidification

Landfills have long been piled with various sludge, oil, plastic and other corrosive materials, which can be solidified and repaired to prevent the spread of pollution.

07 / Contaminated Soil Remediation

In-situ stabilization and remediation of heavy metals in soil, engineering treatment of contaminated soil, vegetation restoration, and reducing the potential dangers of heavy metals in contaminated soil to the ecological environment and human health.



TYPICAL CASES

1、In-situ Solidification of 1 Million m^2 on Beach in a Chinese Coastal City

Project Overview: An industrial plant is to be built in the reclamation area (2,500 acres). The bearing capacity of the foundation in the entire reclamation area was $<30\text{kpa}$, which was impossible to go infrastructure construction. The cost is high if adopting traditional soil replacement or slag backfilling treatment, which is also not environmentally friendly. The in-situ solidification system reached depth 1.2 meters, and improved the bearing capacity to over 100kpa , which well solved the problem of low bearing capacity of the soft foundation and inability to carry out infrastructure construction.



2、In-situ Solidification of 300 Thousand m^2 of Silt in An Industrial Area

Project Overview: The entire industrial plant area was muddy tidal flats. The original adopted plan was laying slag and riprap to squeeze silt to construct, but the silt was very deep and the water content was too high, so it was impossible to move forward. The silt in-situ solidification solution solved the problem. According to the on-site construction conditions, the solidification depth varies from 2 to 5 meters, which improved the bearing capacity to over 120kpa .



3、200 Thousand m² of Municipal Sludge Solidification

Project Overview: The municipal sludge landfill was solidified in situ, and photovoltaic solar energy was laid on the solidified site.



4、Highway Roadbed Solidification

Project Overview: The highway subbase had insufficient bearing capacity, so in-situ solidification solution was carried out. The bearing capacity after solidification reached more than 120kpa.



5、Silt Solidification at The Entrance of Cross-River Tunnel

Project Overview: The entrance of the cross-river tunnel shield machine was in the River. A steel sheet pile cofferdam was built in the River with an area of more than 20,000 square meters. The cofferdam adopted the silt in-situ solidification solution, and the solidified site was used as a material storage base.



6、Solidification of Polluted Bottom Mud in Landfills

Project Overview: After the garbage was excavated and sorted in a certain area, the polluted bottom mud was remediated and stabilized in situ.



7、Solidification of Photovoltaic Power Generation Base

Project Overview: The booster energy storage base for water photovoltaic power generation was about to built on a silt plot. The overall silt was solidified to a depth of 4-5 meters, and the bearing capacity reached more than 150kpa, providing good foundation support for energy storage equipment.



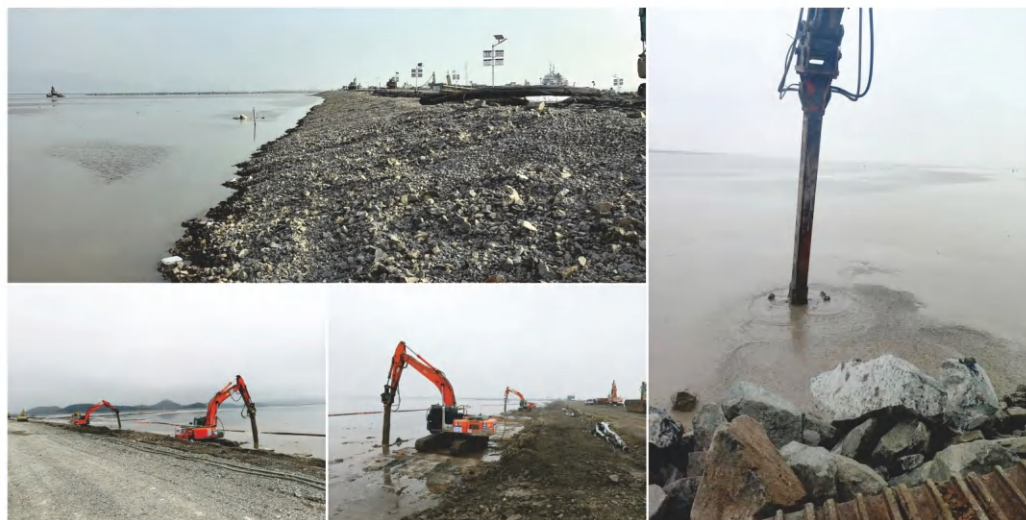
8、A Coastal Port Soft Foundation Solidification

Project Overview: Coastal port need to store heavy cargo, solidification depth 4.5 meters, bearing capacity reached more than 150kpa.



9、A Coastal Port Dredged Silt Solidification

Project Overview: The density of dredged silt is only 1.3 tons/cubic meter. It is solidified in situ on the inside of the dam and used for anti-seepage and as a construction access road.



10、A Construction Engineering Bureau Mud Pool Solidification

Project Overview: In-situ solidification of pile foundation mud eliminated the need for filtration and external transportation, reducing costs. The bearing capacity of the solidified mud reached more than 120kpa, which could be used as roadbeds.



11、Solidification of Construction Access Roads

Project Overview: A extension channel regulation project is located in a coastal city. Two construction access roads are solidified on both sides of the channel to facilitate the later construction of large equipment.





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