RAS-JET SYSTEM

Mechanical Soil Mixing Combined With Jet Grouting

Raito

Principle

In RAS-JET system, a cement based hardening agent is discharged and mechanically mixed with in-situ soil by rotating mixing blades while the same slurry is jetted from the end of a blade at the same time. With this system, the homogenous soil-cement column mass of a large diameter will be installed underground.

Advantages

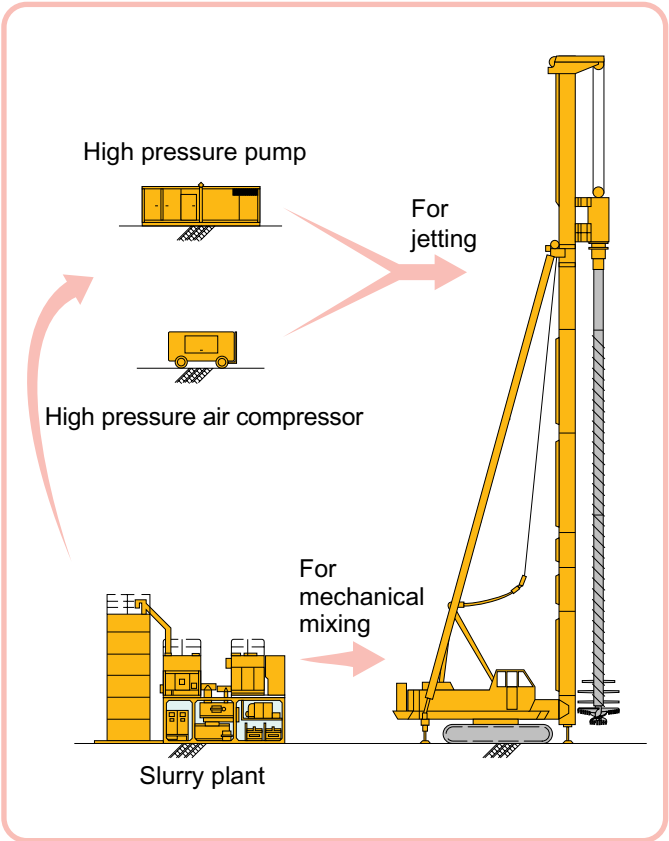
1 . Mechanical Mixing Part

1) Dual and counter rotation mechanism eliminates the problem that soil and mixing blades turn together, resulting in poor mixing.
2) High torque motor enables large-diameter improvement (dia. 1600mm to 2000mm, excluding the jet grouting part).
3) Counter rotation mechanism with dual wall rod contributes to high drilling accuracy.
4) Computerized control system enables real-time monitoring of improvement.

2. Jet Grouting Part

1) Super high pressure jet of slurry cuts and breaks in-situ soil and produce homogenously improved zone around the mechanically mixed core.
2) Improved soil-cement product follows the geometry of adjacent underground structures and tightly contact to the surface of structures.
3) Buried obstacles will be efficiently encompassed with improved soil.
4) Very large diameter improvement will be obtained due to the slurry jet discharged at the end of the large-diameter blade.large-diameter rotation blades.

Equipment configuration



Major equipment

Item		Type
Rig		120t class 2-stay piling rig
RAS-JET Auger Mechanism		Dual rotation type
Full-automatic Slurry Plant		45m^3 class
Generator	for mechanical mixing	800KVA or more
	for slurry plant	220KVA
Back-hoe		0.6m^3 class
Cement Silo		30t class x 2
Water Tank		20m^3 class x 2
Agitator		1.5m^3 (when necessary)
Computerized Control System		For speed, depth, flowrate etc.
Crawler Crane *		50t class
Equipped Lift *		
Joint Mechanism *		Hydraulic telescope type

* used when rod jointing is required.

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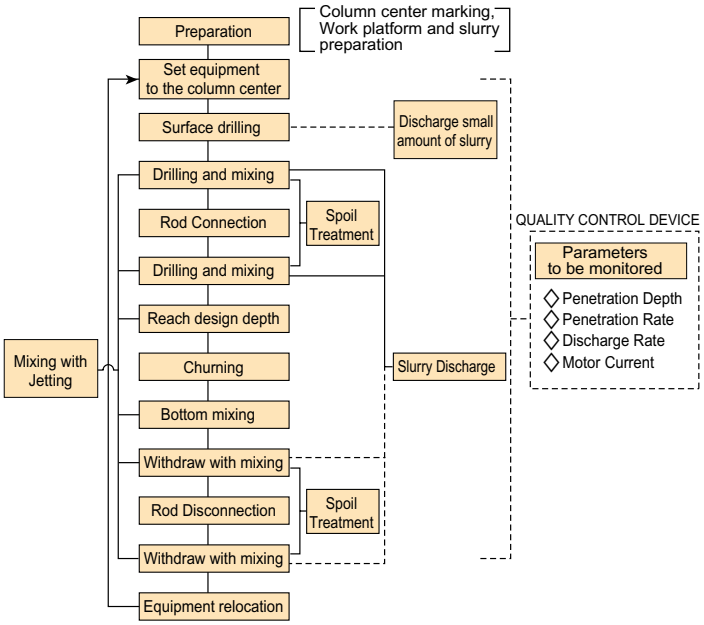
Standerd Construction Sequence with Rod Jointing



Test Jetting

Test Results

Sample Location	Unit Weight (kg/m^3)	Unconfined Compressive Strength (kgf/cm^2)	Deformation Modulus (kgf/cm^2)
Mechanical Mixing Part	1,486	23.6	2,730
Jet Grouting Part (center side)	1,472	36.1	5,080
Jet Grouting Part (periphery)	1,443	20.9	3,700

W/C=100%

Column Product with Jet Grout Lapping

Improved Column Product

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