

Jet grouting is an in-situ construction process used to improve the mechanical characteristics of a soil. The technique is used in situations where increased stability and bearing capacity or decreased permeability is required. Because of its design flexibility, jet grouting is an important alternative to more traditional grouting methods, slurry walls, mechanical underpinning systems, micropiles, or ground freezing.

The desired bearing capacity and permeability are pre-determined which determine the grout makeup and zone of treatment. High pressure is applied forcing neat cement or cement/bentonite stabilizer through a rotating jetting nozzle. As the nozzle is raised, the stream of grout destroys the soil matrix and creates a column of soil and cement. The jetting parameters of flow rate, pressure, retraction rate and rotation speed are determined by the energy required to create the column with the desired properties, and are closely controlled. An electronic recorder documents information for each hole. The Grout Tracker System, a real-time integrated process to control and monitor the operation is also available.



Figure 1. Jet Grouting Drilling Equipment



Advantages

- Applicable in a wide range of soils from granular to cohesive
- Rapid, effective, and cost saving alternative to other grout injection methods
- Strength and permeability are predetermined
- Small hole diameter allows process under existing buildings, in confined spaces, around utilities
- Little or no disruption of facility operations. Grout can be pumped great distances, keeping equipment and noise away from treated areas
- Maintenance free
- Structural and geometric design flexibility
- Cutoff walls or seepage barriers in permeable soils
- Soil consolidation for tunnel roofs
- Excavation shoring
- Soil stabilization
- Underpinning
- Ground water control
- Environmental remediation

For more information on how **Jet Grouting** could be used on your project, contact Clay Rathbun at 913-378-2571 or call 913-422-5088.