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JET GROUTING TOOLING

DOUBLE PHASE TYPE

03/2026



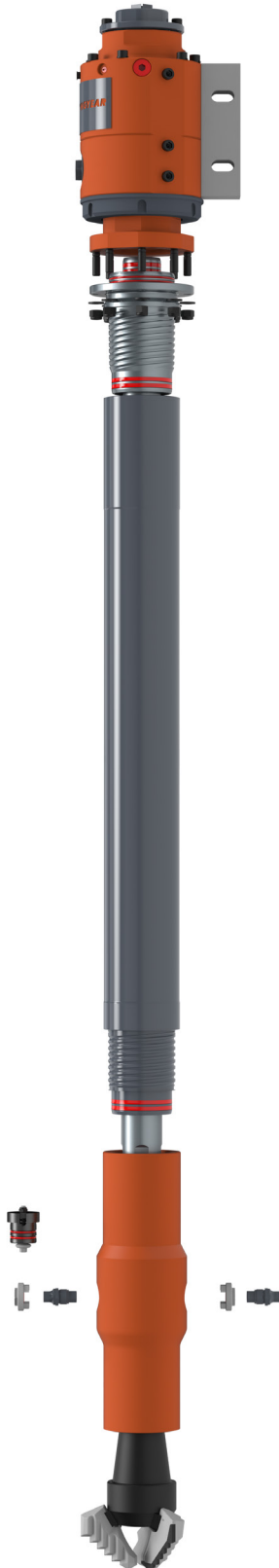
DRILLING SYSTEM

APPLICATION

Jet grouting or high-pressure Injection is a ground stabilization technique as well as a sealing method used in soil conditions ranging from loose sediment up to soft rock structures.

In the jet grouting process, a cement suspension is injected at pressures of 100-600 bar (1,450-8,700 psi) through the jet grouting tooling and into the soil in the drilled hole. The cement suspension mixes with the surrounding soil as the jet grouting tool string is slowly rotated and retracted from the hole. The result is a subsurface grout column.

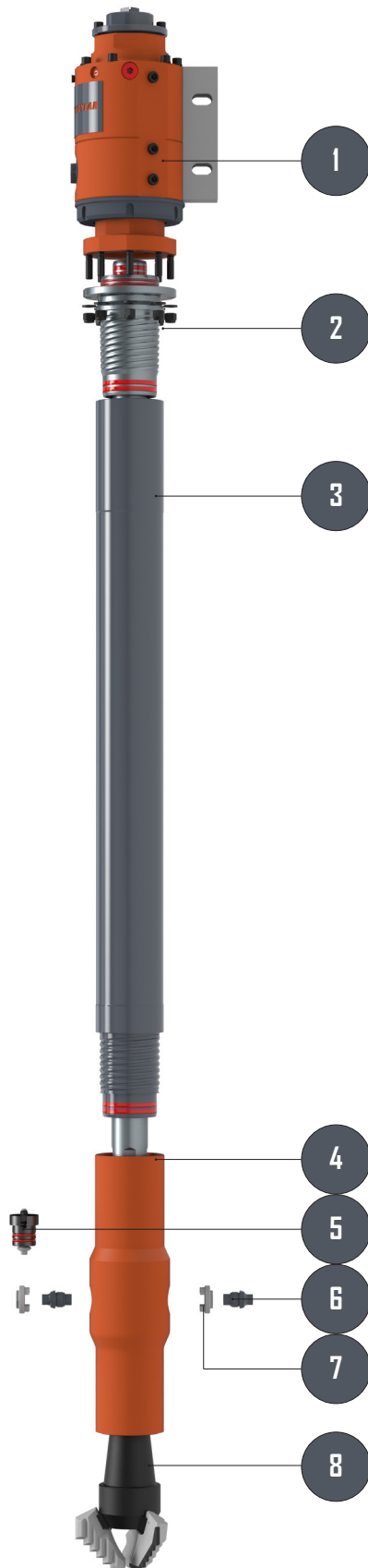
Jet grouting is performed with either single, double, or triple tube jet grouting systems based on the ground conditions, the grout injection, air and/or water for the ground jetting and mixing.



DRILLING SYSTEM



JET GROUTING- DOUBLE TYPE

**FLUSHING HEAD (1+2)**

Flushing heads for double tube jet grouting systems provide the connection point to the drill string for the flushing media during drilling as well as the high-pressure grout and air during grout injection.

The JG Head consists of basic head and a flange to connect the drill rod.

Flushing heads are mounted to a flushing head carrier which allows the head to move up the mast extension on the rig.

ROD (3)

Double tube jet grouting rods provide the drill string for drill rotation and flushing as well as the path to the nozzles for the high-pressure grout injection. Rod ends are constructed of high strength nitrided steel and friction welded to an annealed mid-body. Inner tubes in the dual tube systems are secured inside the outer rod utilizing a circlip or wire fuse connection. Rods come with special seals between rods which resist damage from abrasive grouts and multiple cycles of making and breaking rod joints.

VALVE FASTENER (MONITOR) (4)

The valve fastener (also called a monitor) mounts between the drill rod string and the drill bit. The valve fastener contains the injection nozzles as well as the automatic valve. The valve fastener channels the medium from the inner drill string and outer rod to their associated nozzles.

AUTOMATIC VALVE (5)

The automatic valve is located within the valve fastener and controls the flow of both low-pressure flushing fluids and high-pressure grouting media. During the drilling operation the spring-loaded automatic valve allows for flushing fluids to pass out through the drill bit. When high-pressure grout is introduced into the drill string the automatic valve will close directing the jet grouting media and air out through the injection nozzles in the valve fastener. The pressure can be adjusted in front of the drilling start when the valve closes for jet grouting.

INJECTION NOZZLE (6)

The grout injection nozzles mounted in the valve fastener are the exit point for the high-pressure grout into the grouting zone. Injection nozzles are constructed with a tungsten carbide body with a threaded steel base. The nozzles are available with various sizes of a standard round injection orifice or a ribbed injection orifice. The ribbed orifice creates an injection with less turbulence from a more compact jet.

AIR NOZZLE (7)

The air nozzles mounted in the valve fastener are the exit point for the low-pressure phase into the grouting zone. The compressed air reduces the spray effect, resulting in a more focused, piercing jet.

ROTARY BIT (8)

The rotary bit for a double tube jet grouting system mounts below the valve fastener. They are designed for rotary drilling only in overburden. They come in a variety of winged bit designs with tungsten carbide inserts and flushing ports.

JET GROUTING- DOUBLE TYPE





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