



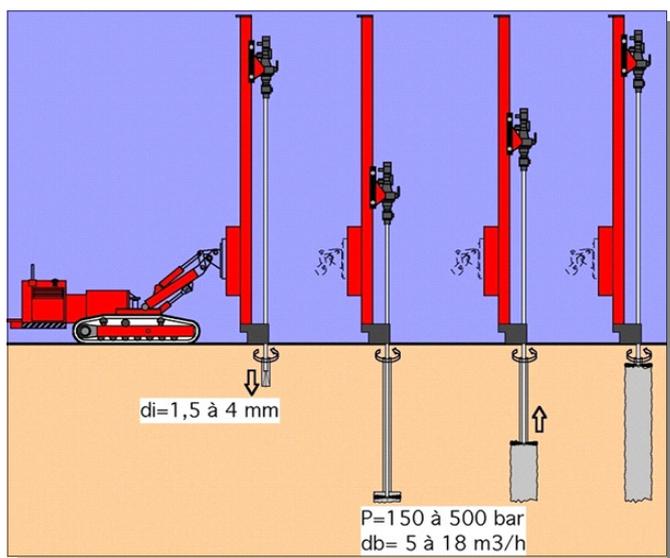
Very high pressure (VHP) grouting, also called jet grouting, involves the in situ mixing of soil with water and cement to form grout columns that can be used for foundations, general soil stabilisation, earth retaining or anchoring. Grout columns can be formed underneath existing walls and/or foundations by using relatively small-diameter drilling rods.

Execution

After the drilling rod has been brought to the desired depth, grout is injected through a number of nozzles at the tip of the drilling rod. The impact of the grout jets is so intensive that the surrounding soil particles are torn loose and mixed with the grout. A grout column is formed by slowly withdrawing the rotating drilling rod whilst grout penetration. The diameter of this column is determined by the injection pressure, the withdrawal rate, the rotation speed and the local soil conditions material. Steel or glass fibre reinforcement can also be placed in the fresh grout after the grout column has been formed.

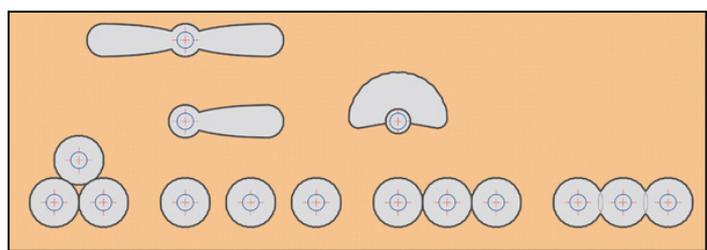
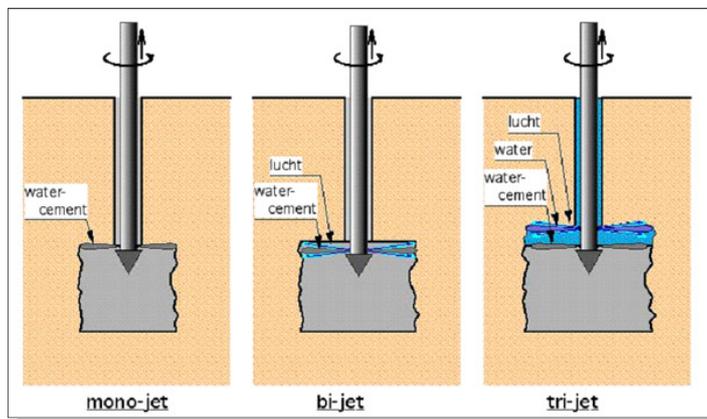
Three execution methods are available:

Mono-jet: Loosening and mixing of the soil by means of high-pressure injection of a water-cement mixture essentially occurs in a continuous motion.



Bi-jet: This method is similar to the mono-jet method, but the water-cement jet is surrounded by a pressurized air mantle in order to increase the penetration depth.

Tri-jet: The soil is first cut away by a high-pressure water jet surrounded by a pressurized air mantle. The so formed gap is then filled with a water-cement mixture under relatively low pressure.



Applications

- General soil stabilisation.
- Construction of impermeable vertical or horizontal sheets.
- Construction of earth-retaining walls.
- Sub-revetments.
- Reinforcement of existing foundations.
- Restoration of existing foundations.
- Grout braces for drilling pits for horizontal bores.
- Waterproofing walls or revetments.



Advantages

- Execution is fully vibration-free and subsidence-free, which allows it to be performed under or near existing foundations.
- Adjacent grout columns can be used to form solid walls or foundation bodies.
- Can be implemented in confined spaces, such as cellars etc...
- Can be used in a wide range of soil.