

# JET GROUTING



SOLTRAITEMENT



The JET GROUTING process fits particularly with grounds that cannot be grouted by classic processes.

It is a soil global treatment by jetting under very high pressure a cement grout. It creates an in situ a column made of a soil and cement mixture.

Due to the high energy of the Jet, by association of high pressure and high flow rate, the ground is destructed and changed into a soil concrete with expected mechanical and physical characteristics.



# JET GROUTING : TECHNIQUES AND APPLICATIONS

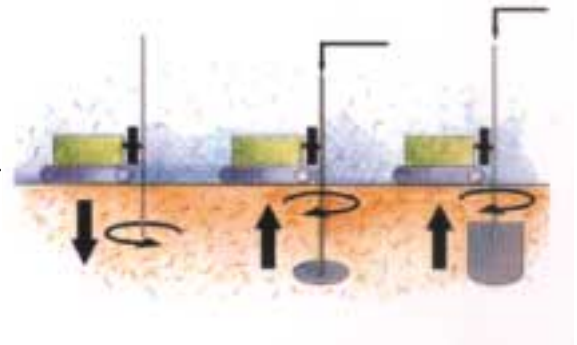
The equipment is composed of a stationary part (cement storage, ready made grout plant, high pressure pump) joined by a flexible high pressure pipe to the ground boring machine that moves on its tracks to each treatment point. The head of the boring rods is equipped with injection nozzles, specially chosen according to the ground and the expected characteristics of the treatment.

## Treatment process

It consists into three phases:

- Preliminary design of characteristics of the treatment
- Small diameter destructive boring (about 15 cm) down to the lower level of the ground to treat
- Jetting under very high pressure (about 450 bar) of a cement grout by a simultaneous rotation and rising of the rods.

The columns of soil-cement mixture may measure more than 2 meters diameter.



Trial zone with various parameters

## Non destructive quality control

- Grout:
  - pressure,
  - flow rate,
  - injected volume,
  - density.
- Drilling:
  - depth,
  - rising speed,
  - rotation speed,
  - treated height.





## Impervious curtains

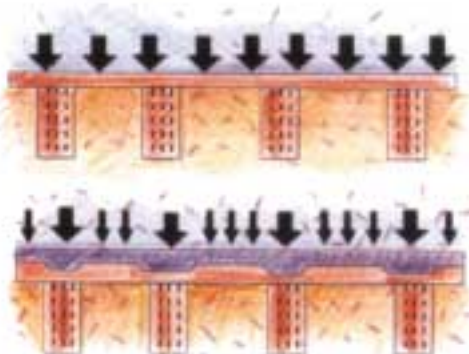
By “plan” Jet, possibly reinforced with columns.



## Impervious and shouldering wall

Construction of a continuous wall by interpenetrated soil-cement mixture columns. Particularly suitable for wells enclosure or excavation even downtown.

The ground under the bottom of the excavation can be treated from the surface to ensure its imperviousness and stabilise of the stratum of the building to edifice.

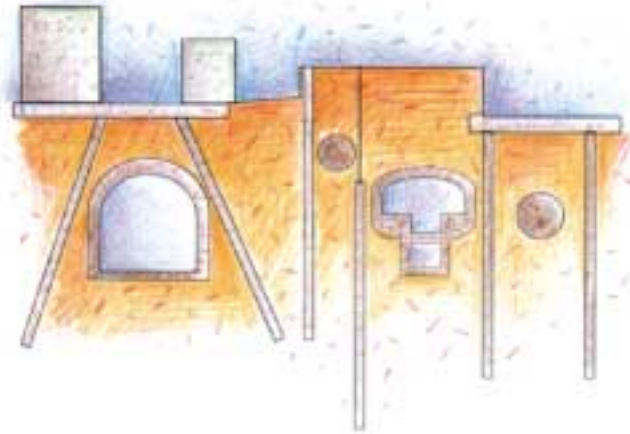


## Soil global treatment

Used to carry uniformly distributed loads (platform, embankment, quay, industrial paving) associated or not with punctual loads (buildings, industries, shed, bridges...), the treated ground is covered with a load transmission layer and a thin concrete slab.

## Different applications of the JET GROUTING process

- treatment of a ground crossed by pipes and underground constructions,
- foundations of constructions and buildings,
- pre-arching tunnels,
- reinforcement of foundations under existing buildings,
- working under limited height.



Soil reinforcement.  
Stadium in Corsica.



Working from inside  
the buildings.

### Recent references

- LA DIBAMBA (Cameroon)** - Camrail - *Under pinning of rail road bridge* - 4 000 ml
- OSO 2 BONNY ISLAND (Nigeria)** - Mobil - *Pentane Tanks* - 12 000 ml
- ANGOULÈME (France)** - District d'Angoulême - *Sewage Treatment Plant* - 6 300 ml
- DOUAI (France)** - CCI-SMAEZI - *Exhibition Halls* - 3 800 m<sup>2</sup>

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