

### Mechanized tunneling

The machines usually found in nowadays tunnels are

[Main beam TBMs \(or open TBMs\)](#)

[Shield TBMs](#)

[Compressed air](#)

[Slurry Shield](#)

[EPBS shield](#)

### To Know more

- [TBM glossary](#)
- [Recommendations TBM ITA](#)
- [Recommendations for Design and Operation of shield machines](#)
- [Selection of TBM criteria paper](#)

Mechanized tunneling (as opposed to conventional techniques) are all the tunneling techniques in which excavation is performed mechanically by means of teeth, picks or disks.

These tunneling techniques comprise then a wide range of different machines, from the simplest like backhoe diggers to the most complicated like confinement-type shield TBMs. These machines not only carry out the excavation of the ground, sometimes they also provide support.

This support can be just peripheral (like in the case of shield TBMs) or also being applied to the front (Earth pressure TBMs or Slurry Shields for instance).

Mucking is also performed automatically by these machines in the majority of cases, as it is the application of permanent support like in the case of shields, where precast concrete elements are placed directly by the machine.

As compared to conventional tunneling, different advantages and drawbacks can be stated for mechanized tunneling:

### Advantages

Enhanced health and safety conditions for the workforce

Industrialization of the tunneling process

Possibility of crossing complex hydro-geological conditions

Good quality of the finished product

## Classification of Mechanized Tunnelling Techniques

