DRY ROTARY DRILLING METHOD APPLIED TO WATER WELL DRILLING

The dry rotary drilling with temporary casings provide multiple benefits rather than others systems (percussion, mud or air rotary circulation systems):

- The rig used complies with Machinery Directive and has the CE mark (Rigs on the market used for percussion normally don't have this mark due to their type of operating system that involves uses of free fall bull wheel that hardly comply with Machinery Directive);
- It quickly performs the drill and ensure to reduce work times;
- Our temporary casing is made of quick couplings pipes, that means there is needs of welding or blowtorch cut on site;
- It is a very versatile system allowing different configurations;
- Water or mud (bentonite or polymers based) are not required;
- All Drill cuttings are solid and are more manageable on site (less waste for disposal on site);
- It doesn't yield mud during drill time;
- Drill cuttings can be loadable by the operator in waste pits or in demountable containers;
- It doesn't mix or alter the soil composition allowing a more detailed stratigraphy;
- It allowed to take clean samples even in big cobbles soils;
- Can drill large diameter wells (1.200 mm) without reducing the drilling speeds;
- Cleaning and Development of the well are more easily to perform due to a non-alteration of the drilled soil;
- The machine is self-assembling, so there is no danger whatsoever for the workmen during the assembling phase;
- Set up construction site times, execution times and developing times are considerably reduced;
- Drilling tool runs on guides that are an integral part of the machine, so this can prevent uncontrolled and adverse fluctuations or falls (more likely to happen in a percussion system where the tool is floating in the air);
- The drill by cutting allows to avoid vibrations in the surroundings areas (primary condition to perform in a city center area) (in the percussion drill system this problem cannot be solved);

Our company has been using this system successfully for about ten years in the environmental field (barrier wells). We have operated with this machine in every part of the Italy and lately also to perform geothermal wells in Milan area.

This system produces benefits for all the actors because allow to reduce times, costs and dangers for both operators and infrastructures. Its allow to detract responsibilities of safety checks on the machines from customers, construction supervision and security coordinators.