



BORED PILES



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Large diameter bored piles are non displacement piles which are commonly used where large vertical loads or bending moments must be carried by a single unit.

Bored piles founded in rock provide an effective means of minimising foundation settlements and a small number of high capacity bored piles can often provide significant savings in pile cap costs over other, lower capacity, pile types.

Being non displacement type piles, bored piles can be installed with little or no vibration, and with much lower noise levels than driven piles.

Franki has a large range of equipment available for the execution of bored piles ranging from limited headroom equipment to modern all hydraulic tracked machines capable of drilling holes in soil and rock.

Soil and or rock is removed using purpose designed drill tools including soil and rock augers, drilling buckets, core barrels, and down hole hammer drills. Drilling to depths of up to 60 meters and to diameters from 300mm to in excess of 2 metres is possible in soil and rock.

Various methods of support for the sides of bored piles during construction are available. These can be selected to suit the type of formation being drilled, the ground water regime encountered, and site environmental constraints.





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Shaft support methods available include:

- * Vibrated temporary casing.
- * Drilled temporary casing.
- * Oscillated temporary casing.
- * Permanent liners.
- * Drilling under water.
- * Drilling under bentonite.
- * Drilling under polymer fluids.

The load capacity of bored piles is a function of the geotechnical capacity of the pile, the installation technique chosen, and the structural capacity of the pile shaft. The capacity of piles socketed into good quality rock is often limited by settlement considerations. Bored piles are also particularly suited to providing resistance to high lateral loads such as those induced by wind loading and earth quake loading. In these circumstances the larger diameters available, combined with heavy steel reinforcement cages if required, provide the required structural strength.

In very hard rock, bored piles can be constructed using down the hole hammer drills or roller cutter core barrels. These techniques allow the drilling of hard and abrasive rocks which would otherwise be very difficult to penetrate economically with conventional drilling equipment.

In some circumstances, belling techniques may prove economical to take advantage of high end-bearing resistance. Typical bell diameters of up to 2 times the shaft diameter can be constructed by mechanical means.

The actual load capacity of bored piles can be verified by static geotechnical calculations, by logging of shafts during drilling, by static or dynamic load testing, or by Statnamic load testing which provides an economical means of testing to high load levels.