

DESCRIPTION OF CIVIL WORKS



biceberg, underground and automatic parking for bicycles

Description of the necessary civil works (B23/X)

The automatic bicycle parking **biceberg** needs for its installation and operation an underground space or area of a cylindrical shape with a free internal diameter of 7.5 m and a free internal height dependent on its capacity to locate its machinery. Inside this cylinder, if required, a central pillar can be located to support the top forged slab.

On the bottom of this space, a little 2.4 m long y 1.25 m. deep square pit is made where a water bailing pump is installed.

On the ground level an urban element is installed which consist of an approx. 2.4 m cube which serves as a support and closure for the access platform, through which the bicycle parking and removing operations are made. This urban element and also the access platform are part of the equipment supplied by this company.

The communication between the underground space and the urban element is made through a 1 m. by 2 m. opening in the forging finished off with a 8 m. high plinth (free over the final surfacing) which serves as a base for the fixing of the urban element.

All these elements and building details are indicated in the plans attached.

For this underground space the idea is to take advantage of the know-how developed in the construction of prefabricated buried containers, usually intended for liquids, and to transfer and adapt it for the typical container which fits the features of this product. In any case to use the traditional systems to make such work is also possible.

The execution of the civil works consists of:

Emptying: The area emptied by means of a drag shovel is a 5.00 meter radius cylinder, the height of which depends on the model to be installed. This emptying will leave a soil stockpiling in the volume needed for the subsequent filling of the wall extrados.

Foundation laying: Construction of a reinforced concrete H-200, with an average thickness of 30 cm. 10 cm of cleaning concrete H-100 must have been dumped previously. In the slab and by means of a template the lifting element shaft will be located, which in turn houses a water bailing pump. In the centre of the slab some mortices with template are located which are arranged angularly to adapt the successive flights of the central tower-pillar of the structure

Traditional walls (if required): Reinforced concrete H-200 and AEH-500 made with panelled shuttering, and with a 25 cm thickness. The dumping is completed to the bottom of the forging, arranging mortices to tie it with the upper forging.

Prefabricated container (if required): Prefabricated reinforced concrete in 1 m. height panels which cover all the elevation. The thickness is 25 cm. in nervured elements which reduce to less than half thickness in the elements making the upper slab. The concrete used is H-450 with steel AEH-500.

Traditional forging (if required): According to the use intended for the upper part of the forging, varying from road traffic to a pedestrian area, in the case of the traditional civil works the forging will adapt to the circumstances of each project, ranging from the slab installation to the different forging systems presently used. Nevertheless the reduced span of the forging guarantees the transit of vehicles over it with a maximum edge of 30 cm.

Prefabricated forging (if required): Prefabricated forging consists of concrete H-450 and steel AEH-500, prefabricated 2.50 m. and 0.40 m. side and 3.00 m. high segments which make a trapezium distributed in the shape of cheese in portions.

Perimeter filling: In the lower part of the wall a geotextile felt will be installed and gravel will be dumped. After that the filling will be completed with own or provided materials by 20 cm. thick compacted layers.

Plumbing: In the inside of the container there will be a bailing pump connected to external plumbing by a PVC pipe with nonreturn valve and with detectors and signalling connection with the central control unit of the equipment.

Surfacing or restitution: As a safety measure a 1 cm. thick joint will be installed all around the forging. It shall be sealed with any elastic product suitable for the surfacing installed, which guarantees the non penetration of stones or gravel to the interior.

Installations: The following installations will be necessary:

- An electric supply service wiring to the control panel for a 5,500 W single-phase 220 V power.
- A telephone service wiring for 1 independent basic telephonic line without a switchboard to the control panel.
- Ground connection for the assembly which consist of a bare copper wire peripheral ring with a section of 50 mm², enough copper jumper bars to obtain a maximum resistance of 6 Ohms (at least four jumper bars), and labelled check case.
- Interior lighting installation for the container with 1x36W sealed phosphor screens.
- Installation of power outlets for the assembly and maintenance.

Civil works should consider at least the following items:

- Clearing and cleaning of the emptied space (including surfacing).
- Emptying and excavation of basement trenches and services.
- Execution of foundation layings, bases and pits.
- Execution of walls.
- Drainages and waterproofing.
- Filling and compacting of emptied area.
- Piping and services installation.
- Execution of bases in the perimeter.
- Floor laying and surfacing of the perimeter and forging.
- Execution and installation of the element plinth and of the access area.
- Installation and wiring of referred services.

Civil works: Installation sequence of a prefabricated container



Emptying



Foundation laying



Prefabricated container



Top forged slab: prefabricated segments



Waterproofing



Floor laying

