



CONSOLIDATION OF FOUNDATION.

IS IT:

Product

Technology

Equipment

APPLICABLE FOR:

Restoration

Rehabilitation

New Construction

APPLICABLE ON:

1. Foundations and underground structures

2. Vertical structures

3. Horizontal structures and vertical connections

4. Roof and terraces

5. Façade and building envelope

6. Finishes and completion elements

7. Integrated services

8. General strategies for building recovery

Related companies: GeoNOVATEK

DESCRIPTION

When it is required to raise a settled building to level. Structures are lifted and underpinned by transferring the load of the building to deeper and more resistant soil strata.

WHY TO USE

Lifts and consolidates: The adjustable preloading device lifts and consolidates the structures until they regain their flatness. Even over 30 cm.

Immediate checking: The load to which each LIFT PILE® is subjected is checked individually during the intervention and calibrated by the device.

High design load-bearing capacity: the design load-bearing capacity is reached by means of the pressure exerted by the hydraulic piston.

Speed and low invasiveness: quick interventions without excavation, while maintaining the habitability and functionality of the structure.

Preventive underpinning: allows the designer to reduce structural stresses on the foundations of new buildings.

Immediate aesthetic repair and geonovatek guarantee: the client can proceed to the filling and covering of cracks after the intervention. LIFT PILE® underpinning is guaranteed for ten years.

HOW TO USE AND APPLY

- Elevation and consolidation of inclined or settled structures.
- Underpinning of foundations, pavements and reinforced concrete benches.
- Consolidation and lifting of reinforced concrete foundations of telephone poles, cranes, overhead cranes, telephone and television antennas, wind turbines or metallic structures for large advertising signs.
- Preventive underpinning of foundation slabs for new construction.
- Increasing the load-bearing capacity of foundations for load increase: lifting and underpinning of foundation slabs for successive load increase due to the construction of more floors in a building.

- Consolidation and elevation of industrial floors or pavements.

PHASE 1

Drilling of the foundation: The first phase consists of the execution of a drilling in the foundation of 64 mm in diameter until reaching the underlying soil (under the base of the foundation).

PHASE 2

Anchoring and insertion of the micropile: The next phase consists of two anchorages on the sides of the hole (using 20 mm diameter steel bars) for the attachment to the foundation of the hydraulic piston required to carry out the penetration or driving. The micropile is driven through the central hole by means of the pressure exerted by the piston, using the two anchors to resist the pressure. The modules, 1 m long, are joined together by means of a high-strength steel joint with improved adhesion.

PHASE 3

Deep driving of the micropile: The micropile, equipped with a point to facilitate penetration, will reach a soil sufficiently resistant to oppose the driving pressure. Along the vertical, LIFT PILE® produces a radial soil compaction effect, which further contributes to increasing the bearing capacity of the micropile itself.

PHASE 4

Insertion of the adjustable preloading device: Once the project pressure and depth are reached, the adjustable preloading device is installed to connect and lock the micropile head inside the foundation.

PHASE 5

Actuation of the adjustable preload device: After locking, the preload device is actuated by means of a torque screwdriver until the preload values of the project or the desired lifting level is reached.

PHASE 6

Locking of the micropile: At the end of the preloading or lifting operations, LIFT PILE® is permanently locked inside the foundation by means of a slurry of high-strength expansive mortar, especially for anchors, type Master Flow 952.

TECHNICAL CHARACTERISTICS

Pressurized steel micropile with improved adhesion
60x8mm

The GeoNovatek micropile is made entirely of S355 steel.

External diameter: 62 mm

Thickness: 8 mm

Length of a module: 1000 mm (\pm 5mm)

RECOMMENDATIONS AND OTHER INFORMATION

N/A

EXAMPLES

N/A

REFERENCES / SOURCES AND LITERATURE

<https://www.geonovatek.es/lift-pile/>

<https://www.geonovatek.es/lift-pile/modalidad-de-ejecucion/>

<https://www.geonovatek.es/lift-pile/especificaciones-tecnicas/>

https://youtu.be/8_imHNkPuFE

WEBSITE OF THE COMPANY

<https://www.geonovatek.es/>



IMAGES AND CAPTIONS



Fig.1: Details of the lift pile's lifts and underpins. Images of the necessary equipment for this type of interventions, showing both its dimensions to be able to work in small spaces and its ease of adaptation to the conditions of the site. ©GENOVATEK

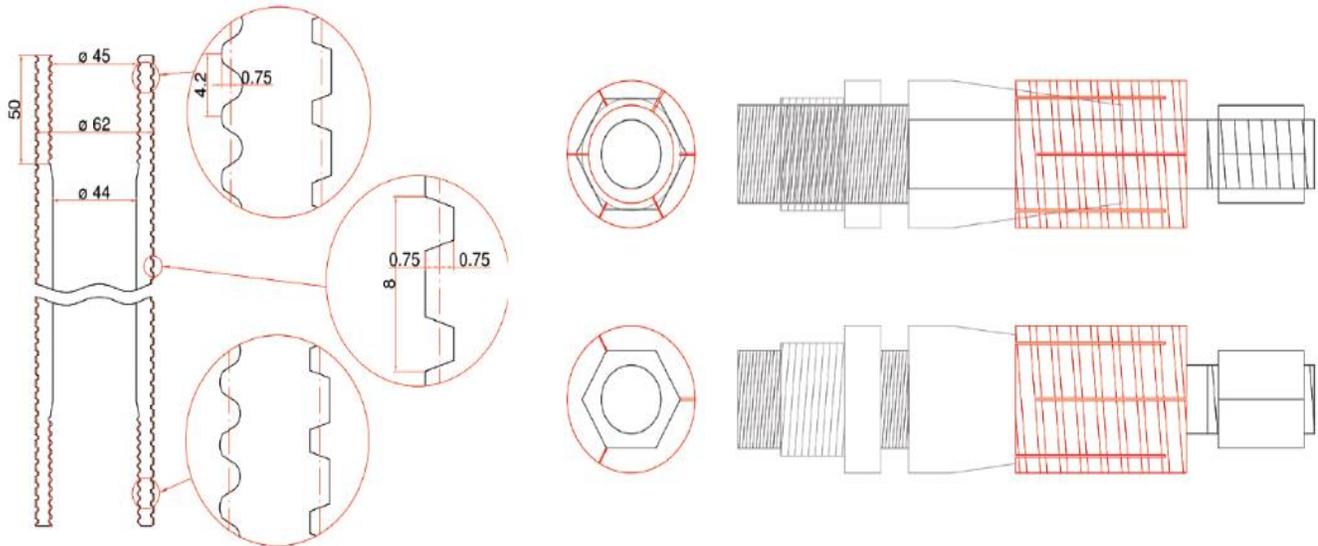


Fig.2: Details of the lift pile's lifts and underpins. The threaded connection between the micropile modules makes it possible to work with small and easy-to-handle parts in confined spaces, while at the same time making it possible to obtain parts of the required dimensions, depending on the characteristics of the building and the terrain. ©GENOVATEK

Dimensions and clearances required for the use of semi-articulated means (crawler tracks) with diamond drill or pile driver.

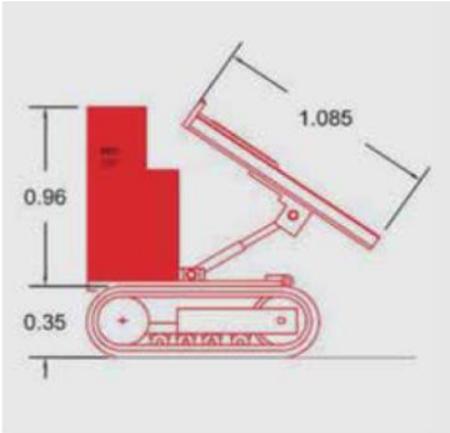


Fig.3: Sectional dimensions of the crawler with pile driver or drilling rig in operating position. ©GENOVATEK

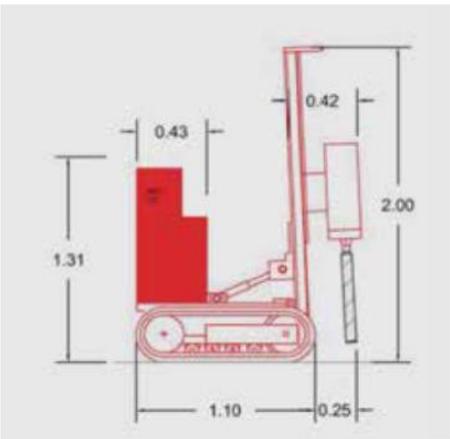


Fig.4: Sectional dimensions of the crawler with pile driving column or drilling rig in working position. ©GENOVATEK

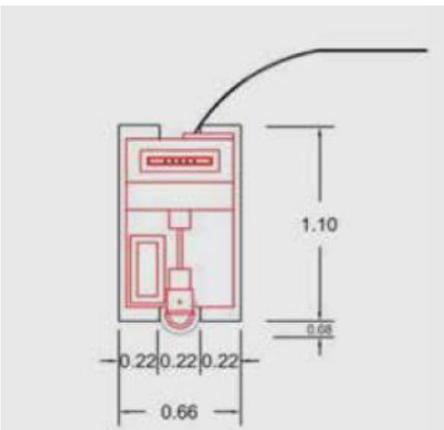


Fig.5: Floorplan dimensions of the crawler with pile driving column or drilling rig in working position. ©GENOVATEK



Dimensions and spacing required for the use of the hand-held diamond drill and the driving column.

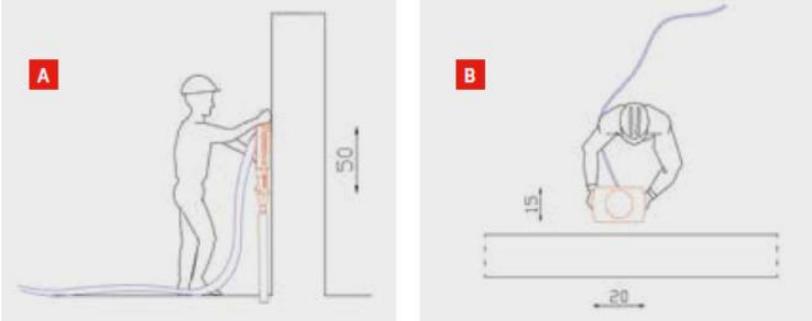


Fig.6: Execution of the through hole in the foundation **with the hand drill**. ©GENOVATEK

A: Dimensions in section of an operator with hand drill.

B: Dimensions in plan of an operator with hand drill.

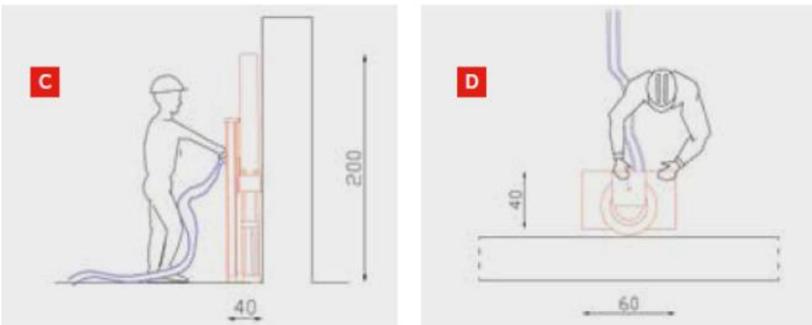


Fig.7: Execution of the micropile in depth **with hand-positioned pile driver**. ©GENOVATEK

A: Sectional dimensions of an operator with hand-positioned pile driver.

B: Plan dimensions of an operator with hand-positioned pile driver.