

# Specialist Press Release

April 14, 2021

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## **Bauer implements innovative lift cell method for “Postbyen” construction project in Copenhagen**

**Copenhagen, Denmark** – In the center of the Danish capital of Copenhagen, the new city area “Postbyen” is being constructed. The project includes commercial spaces, office buildings, hotel service apartments, retail as well as urban residences. To implement the construction project, BAUER Spezialtiefbau GmbH was commissioned by the owner Hercules Fundering on behalf of the general contractor KPC with the execution of the new and innovative lift cell method.

“The BAUER lift cell is an in-house enhancement of the Bauer capsule press”, explains Dr. Joerg Zimbelmann, Team Leader of the Geotechnics Division in the Structural Engineering Department. “The capsule press is used for force measurement and – where necessary – prestressing and strutting in excavation pits.” The strategic use of the BAUER lift cell makes it possible to anticipate the pile settlement during the construction of bored piles, which makes the lift cell an interesting solution for projects with a low permitted total settlement or low permitted differential settlements between adjacent piles.

The method is highly innovative: Before the installation of the pile reinforcement, the BAUER lift cell – a kind of hollow cushion made of stainless steel – is fastened to the bottom end of the reinforcement cage. Through hydraulic lines that are guided upwards out of the pile at the reinforcement cage and accordingly also encased in concrete, the lift cell is initially filled with water under high pressure after the pile concrete has sufficiently hardened. This “expands” the lift cell and pretensions the pile shaft with respect to the pile base. The pressure used in this process is generally determined individually for each pile. After a prescribed retention time for the hydraulic pressure, the lift cell is first entirely filled with a cement paste that has been tested to ensure its suitability until the planned quality is achieved. Then another injection is carried out so that after the cement paste has hardened, deformations of the lift cell are permanently excluded and the pile is fully pretensioned. “Depending on the project requirements, the lift cells are produced by our certified manufacturer with individually defined diameters and undergo a special quality inspection”, continues Dr. Zimbelmann.

To prepare for the “Postbyen” construction project, two BAUER lift cells were subjected to a load test at the Schrobenhausen location and loaded with a pressure of 120 bar – results of up to 150 bar were achieved in earlier projects. Overall, the work of Bauer Spezialtiefbau in Copenhagen included the delivery, installation and injection of a total of 101 Bauer lift cells, of which 35 had a diameter of 1,300 mm for large-diameter bored piles with a diameter of 1,500 mm, as well as 66 lift cells with a diameter of 1,000 mm for piles with a diameter of 1,180 mm. Bauer also provided a BAUER BG 36 V and the required drilling personnel as part of a contract extension. Apart from the extreme space constraints on the urban site, the sharp frost and very hard limestone in the subsoil above all posed challenges for the personnel as well as for the equipment. The installation of the BAUER

lift cells was carried out during the day, while injection work was carried out during the night shift to ensure completely vibrationless working conditions. After an execution period from December 2020 to February 2021, Bauer was recently able to successfully conclude its part of the project.

**Images: 2021-04\_BAUER\_ Postbyen project\_lift cell ...**



(1) To implement the construction project “Postbyen”, BAUER Spezialtiefbau GmbH was commissioned with the execution of the new and innovative lift cell method.



(2) The installation of the BAUER lift cells was carried out during the day, while injection work was carried out during the night shift to ensure completely vibrationless working conditions.

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### **About BAUER Spezialtiefbau Group**

BAUER Spezialtiefbau GmbH, the original parent company of the BAUER Group, has been a major driving force in the development of specialist foundation engineering. It carries out all of the customary processes of foundation engineering, primarily for excavation pits, foundations, cut-off walls and ground improvements on a worldwide basis. In doing so, BAUER Spezialtiefbau GmbH works closely together with their over 50 subsidiaries and branches across the globe. Regional networks around the world allow for the quick and flexible application of machines, teams and expertise. Bauer Spezialtiefbau offers their customers individual, creative and economical specialist foundation engineering solutions for demanding construction projects, from planning through to execution. More at [bst.bauer.de](http://bst.bauer.de)

### **About Bauer**

The BAUER Group is a leading provider of services, equipment and products dealing with ground and groundwater. With over 110 subsidiaries, Bauer can rely on a worldwide network on all continents. The Group's operations are divided into three forward-looking segments with high synergy potential: Construction, Equipment and Resources. Bauer profits enormously from the collaboration of its three business segments, enabling the Group to position itself as an innovative, highly specialized provider of products and services for demanding projects in specialist foundation engineering and related markets. Bauer therefore offers suitable solutions to the world's greatest challenges, such as urbanization, the growing infrastructure needs, the environment, as well as water, oil and gas. The BAUER Group was founded in 1790 and is based in Schrobenhausen, Bavaria. In 2020, it employed about 12,000 people in around 70 countries and achieved total Group revenues of EUR 1.5 billion. BAUER Aktiengesellschaft is listed in the Prime Standard of the German Stock Exchange. More information can be found at [www.bauer.de](http://www.bauer.de). Follow us on [Facebook](#), [LinkedIn](#) and [YouTube](#)!