Press release

Waldachtal, May 19, 2021

fischer fixings for metro expansion in India

A secure hold all down the line

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fischer fixing products are proving their worth under challenging conditions during the expansion of the metro in Kolkata, India. Products being used include FZP II undercut anchors, substructure solutions and FBN II bolt anchors to anchor the cladding with granite panels in the stations. More than 30,000 fischer fixing solutions have been used in total so far.

Kolkata is India's third-largest metropolitan and economic area after Mumbai and Delhi. The city lies in the country's northeastern state of West Bengal, near the border to Bangladesh. Around 14 million of its inhabitants and commuters rely on a good traffic infrastructure, which is why the Kolkata Metro Rail Corporation is systematically expanding the city's metro network.

In addition to the North–South line, line 2, which is currently under construction, is becoming increasingly important, as it is the only East–West line of the metro network. Upon completion, it will connect Kolkata to the neighbouring city of Howrah. The line will also connect key commercial centres as well as two of India's most important long-distance and local railway stations, Sealdah in Kolkata and Howrah in the eponymous city. The line is expected to be fully operational in 2022. A significant challenge during the construction of metro line 2 involves crossing under the Hooghly river that forms the border between the two twin cities. This will be India's first underwater tunnel and will

measure a total of around eleven kilometres in length and 5.5 metres in width. The underwater section will measure approximately 520 metres in length. The project involves the construction of the country's deepest metro station and the metro will pass through the deepest metro shaft.

The stations are an important part of this unparalleled line. The walls of the stations consist of recycled concrete, reinforced concrete and bricks. The planners and architects, the Mumbai engineer and construction firm Afcons and the Moscow planning and construction firm Aecom Designs used heavy granite panels as cladding. The decision-makers took an in-depth look at how to ideally and reliably install these heavy panels while ensuring the safety of staff and passengers. The planners and contractors, which included Rainbow Infrastructure from Kolkata as well as the Godrej conglomerate from Mumbai in addition to Afcons and Aecom Design, ultimately opted for fischer undercut anchors. fischer India supplied an integrated solution consisting of a substructure and fixing solution that takes into account the heavy dynamic loads as a specialist project requirement. The selected fixing solution also allows the granite panels to be dismantled at a later stage.

Around 30,000 FZP II undercut anchors were used in combination with a Chinese substructure solution consisting of C-clasps and L-angle profiles, as well as fischer FBN II bolt anchors that are suitable for flexible applications in non-cracked concrete. "Our client was particularly convinced by the fact that our system solution which fastens the wall cladding in the stations meets the project's high safety requirements", says Jan Zimmermann, Market Manager façade systems at the fischer Group of Companies. Assessments (ETA) and approvals provide added assurance. Uday Shikhare, National Technical Manager fischer India, adds: "Our all-in-one service with which we have already

accompanied our partner through various project phases also contributed to our successful cooperation". This service included custom façade system design as well as the provision and instruction of the stationary SBN 502 drilling machine to create the undercut drill holes in the natural stone façade panels using a wet diamond drilling method.

fischer will continue to support its client until the successful completion of the stations' wall cladding, which is expected to be completed by mid/late 2021 and will provide the right products and services for any fixing applications.

Image captions:

Image 1
A project with depth: India's first underwater tunnel is being built under the Hooghly river (pictured) during the expansion of Kolkata's metro network. The new line includes a metro shaft and a metro station at unprecedented depths.
Image: Elena Odareeva / 123rf

Image 2
The expansion of Kolkata's metro network is a construction project of epic proportions. In order to meet the high safety requirements, the planners and contractors opted for a fischer system solution consisting of undercut anchors, bolt anchors and angles. This allowed the heavy granite panels to securely be anchored to the inner walls of the metro stations.
Image: fischer

Image 3 and 4
The fixing specialist fischer supported its partners with various services during the expansion of Kolkata's metro network and will continue to do so until the project's successful completion. This included on-site support as well as providing the stationary SBN 502 drilling machine.
Images: fischer

Image 5 and 6
In addition to the SBN 502 stationary drilling machine, the BSN 100 mobile drilling machine was also used on the project to create the undercut drill holes in the natural stone façade panels using a wet diamond drilling method.
Images: fischer

Image 7
Around 30,000 FZP II undercut anchors were used in combination with an innovative fischer substructure solution developed in China that consists of C-clasps and L-angle profiles, together with fischer FBN II bolt anchors to secure the heavy granite panels to the internal walls of the new metro stations of Kolkata's expanded rail network.
Image: fischer

Image 8
Line 2 of the Kolkata Metro, currently under construction, connects two of the most important long-distance and local stations: Sealdah in the east (pictured) and Howrah in the west.
Image: skjahirul007 / Shutterstock.com

Image 9
Line 2 of the Kolkata Metro is divided into two parts, a 5.7 km elevated section (pictured) and a 10.8 km underground section that is currently under construction.
Image: The Captured Creations / Shutterstock.com

The fischer Group of Companies

The fischer Group of Companies, headquartered in Waldachtal in Germany's northern Black Forest, generated sales of 872 million euro in 2020 with a worldwide staff of 5,200 employees. The family-owned company operates 50 subsidiaries in 38 countries and exports to more than 120 countries. It includes the five divisions: fischer fixing systems, fischer Automotive, fischertechnik, fischer Consulting and LNT Automation

fischer fixing systems is the technological market leader in key areas of fixing technology. fischer offers products that deliver technical perfection to a wide range of customers, from do-it-yourselfers to tradespeople to key account partners.

fischer Automotive manufactures high-quality parts for vehicle interiors. The company is highly competent in the plastics processing segment and is an important partner for the automotive industry. Its range of products includes air vents, cup holders, trays and multi-function components.

With its construction kits, fischertechnik is active in both the toymaking and the educational sector. fischertechnik is one of the last remaining toy makers to exclusively develop and produce in Germany.

fischer Consulting evolved from the competence developed in the company itself, which includes the fischer ProcessSystem with its central aim of permanent improvement for the ultimate benefit of the customer. fischer Consulting advises small and medium-sized businesses, government agencies and major companies on their path towards lean and efficient processes.

LNT Automation develops and manufactures custom electronic solutions. The company also develops, produces and distributes custom and capacitive touch systems such as multi-touch solutions made of glass and the corresponding controller units. All electronics are manufactured in-house.

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