Alimak lifts at work:
Electricity transmission towers, Yangtze River Crossing, Jiangsu province, China

ALIMAK HEK

Yangtze crossing brings towering achievement for Alimak Hek

Even the Eiffel Tower is dwarfed by a pair of new suspension towers near Shanghai. The 346.5 m-high structures are the tallest of their kind in the world: their sole purpose is to carry power lines over the Yangtze Kiang River. Access for service and maintenance posed unique challenges and the solution has been to install a specially adapted ALIMAK SE 400 FC industrial lift in each tower.

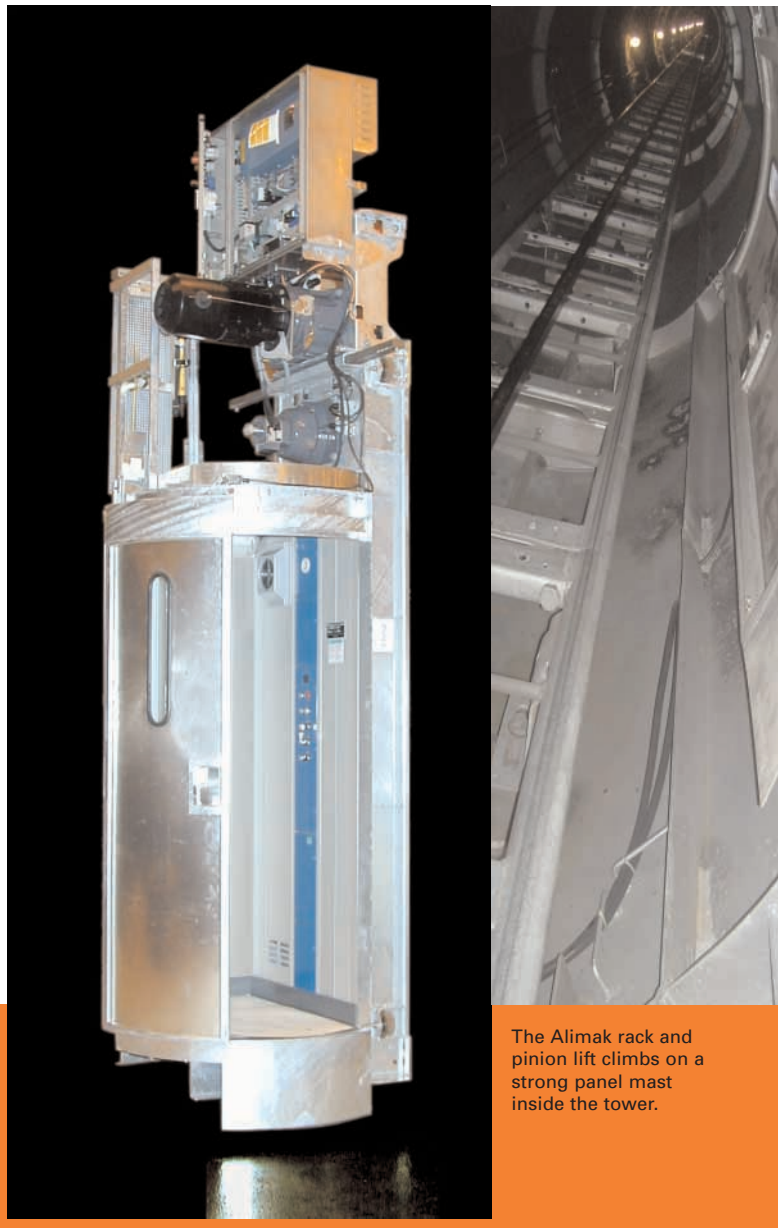
This saves crews from having to climb structures which are taller than all but a dozen or so of the world's highest buildings. The Alimak lifts carry maintenance staff 330 meters up to the highest access levels of the towers at a steady speed of 0.8 m/s so the journey takes just seven minutes. The only other way up involves climbing a dizzying spiral staircase which turns around the lift's core structure.

The towers stand 2.3 kilometers apart, each occupying a base footprint with a side of 68 meters. They have cross arms 72 meters wide, carrying the high-voltage power lines across the river. It is a major shipping route and the height of the towers was dictated by the need to provide adequate clearance under the power lines.

Despite the huge size of the towers, the space available for the lifts was very limited and it has required considerable ingenuity to adapted existing models in the ALIMAK SE range.

The combination of limited space and enormous height made the installation unique and considerably more difficult than the container cranes, cement industrial plants, marine facilities, and steel mills where the ALIMAK SE series is more commonly used.

There have been thousands of installations of the versatile ALIMAK SE system around the world. Most applications can be catered for using the standard range, which



The Alimak rack and pinion lift climbs on a strong panel mast inside the tower.

The Alimak lifts carry maintenance staff 330 m up to the highest access levels of the towers

The Alimak Hek Group is the world's leading supplier of mast climbing equipment and added value services for both temporary and permanent installations providing the most cost efficient, reliable, and flexible vertical access solutions for people and materials in the construction and general industry. Alimak Hek, with manufacturing in Europe, Asia, and North America, operates wholly owned sales and rental companies in some 20 locations around the world, and has over 50 representatives in other locations.

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has capacities from 300 kg to 2,400 kg, a choice of 30 car sizes, and wide options covering factors such as the degree of automation, extras, and the materials used.

Alimak engineers had to ensure that the complete lift structure would fit into an area just 1.5 meters in diameter. The available space was less than the smallest existing car produced. This resulted in customized lifts based on the ALIMAK SE 400 FC but manufactured with rounded fronts and doors to save valuable millimeters. The ride to the top is not for the claustrophobic as the overall car dimension is just 715 mm x 910 mm.

These space restrictions meant that the whole stainless steel electrical cabinet had to be placed on the car roof, rather than being integrated into the wall as would normally be the case.

Customization of the ancillary equipment was also needed, as the lift height was more than 30% greater that the standard Alimak range.

The lift shaft structures were assembled on site from 12 m-high prefabricated durable hot-dip galvanized steel sections and installed on completion of the main steel structure. Each lift has five separate landings. These continue with the rounded shapes corresponding to the lift profile.

The towers were built by a joint venture of Cleveland Bridge and Balfour Beatty Power Networks. They are part of the East China (Jiangsu) Power Transmission Project and are needed to distribute 500 kV of electricity from Yan Cheng Power Station in Shanxi Provence in the north of China to Dou Shan Substation in Jiangsu Province in the south of China. Each of the massive structures contains 4300 tons of steel, held together by more than 200 tons of bolts and they have been designed with a maximum sway of up to 2 meters at the top point.

DETAILS

Location:	Yangtze River Crossing, Jiangsu province, China
Application:	Electricity transmission towers
Lift type:	ALIMAK SE 400 FC SPECIAL
No. of lifts:	2
Capacity:	400 kg
Lift car size:	715 x 910 x 2170 mm (W x L x H)
Speed:	0.8 m/s
Lifting height:	330 m
No. of landings:	5

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