

### KÜÇÜK ÇAMLICA TV RADIO TOWER ISTANBUL, TURKEY



#### Description

Küçük Çamlıca TV Radio Tower is a telecommunication tower with observation decks and restaurants under construction in Istanbul, Turkey. When completed, its top will be the highest point above sea level in Istanbul with a total height of 365.50mt. Hebetec' scope was to lift the antenna and the outer facade.

The antenna consists of 14 segments, constructed and connected to each other by welding within the concrete structure of the tower. After completion of construction, the 165m long antenna was attached at ground level and lifted from ground to 200m height. Fastening the antenna at ground level entailed that the centre of gravity remained well above the attaching point. Besides the lifting height a challenge mastered by Hebetec without any difficulties.



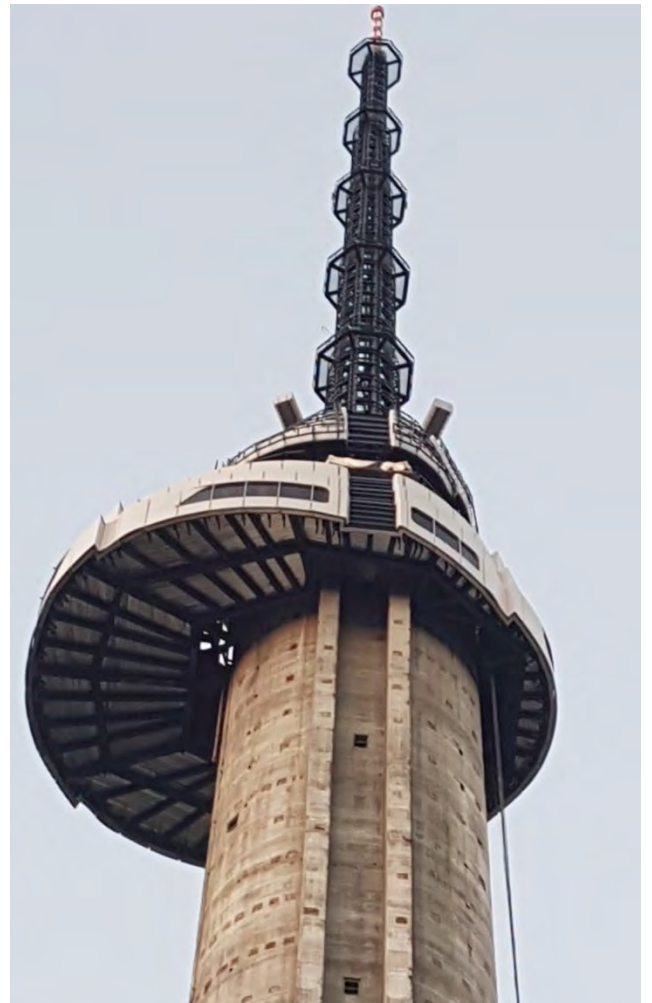
#### Facts

Weight of antenna:	950	to
Weight of facade segments:	960	to
Total weight of facade:	6'720	to
Lifting height:	200	m

#### Handling equipment

Strand jack HA-200:	12	pcs
Power packs PA-4-8:	3	pcs
KPA:	3	pcs

The outer facade consists of 7 segments, each segment contains 3 floors. The segments were assembled on ground level, lifted one by one to 200m top level and connected by welding.



## New Office Building at Herzogenaurach, Germany



### Description

The office building accommodates with its 50'000m<sup>2</sup> area modern workplaces for about 2000 employees.

Well about 2m above ground, the 12'500t weighing steel structure was set up on 233 Hebetec «MegaTube» columns, on an area measuring about two soccer fields.

The impression of a floating building evolves by hoisting the structure another 12m. For this lift Hebetec Engineering utilised 76 jacks with 600mm stroke and 4 strand jacks H-140 with a total 38'560t lifting capacity. Grouped at four jacks each totally 19 lifting towers were arranged carrying the building load. The minutely level lifting into installation position was achieved by a synchronised hydraulic system.



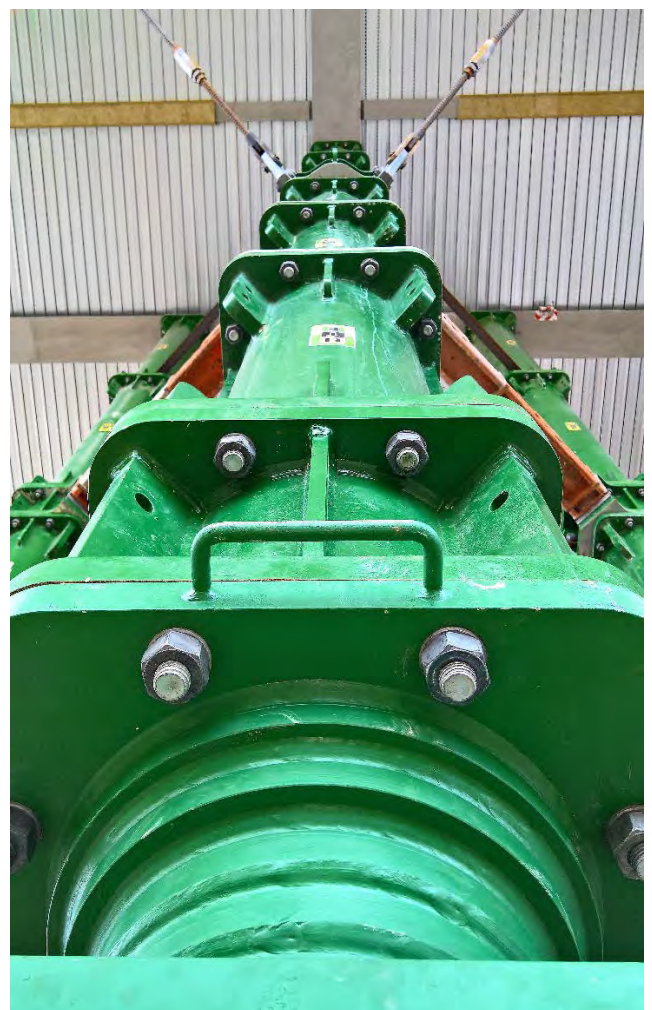
13 bracings with four strand jacks H-40 each and a centre column stabilised the steel structure during lifting horizontally. By hydraulically synchronised bracings minimal deviations of  $\leq 2\text{mm}$  in longitudinal and lateral axis were achieved.

### Facts

Steel construction weight:	12'500	t
Steel construction length:	138	m
Steel construction width:	113	m
Lifting height:	12	m
Total lifting and bracing capacity	40'640	t

### Handling equipment

Double acting jack DP500-600:	76	pcs
Strand jack H-140 (lifting):	4	pcs
Strand jack H-40 (bracing):	52	pcs
Hydraulic aggregates	18	pcs
Hebetec «MegaTube»	approx. 500	t



One of four columns of the total 19 lifting towers at final lifting height.





### Reconstruction of the "Frauenkirche" Cathedral in Dresden, Germany



The 26 lifting jacks are each controlled by a central computer. This computer is given the precise position and loading at each lifting jack, and in turn adjusts all the jacks so that the load rises perfectly level. Once in each new position, the roof is locked in place so that the activities underneath can proceed in complete safety

#### Facts

Maximum weight lifted:	290	t
Lifting in Steps of:	10.5	m
Roof area:	2'700	m <sup>2</sup>

#### Handling equipment

Strand jack H-40:	26	pcs
Power pack:	9	pcs
Central control PC-Visualisation and supervision		

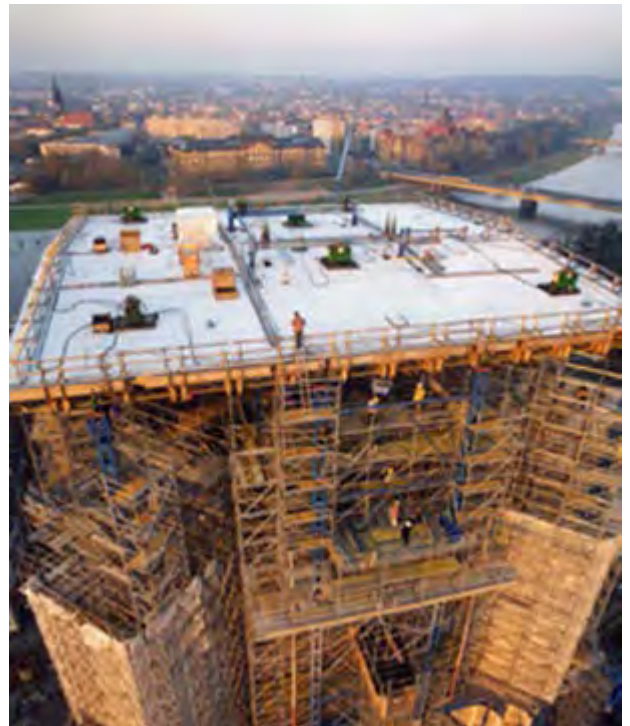
#### Description

After remaining as a ruin for almost 50 years, the reconstruction of Dresden's Frauenkirche Cathedral commenced in 1993.

The aim is to achieve a faithful reproduction according to the original plans by combining hand craft-work with modern building techniques.

So that the church can once again be used, and also so that the main construction work can proceed to a tight schedule without interruptions from bad weather, a roof has been placed over the entire site. This roof has an area of 2'700 sq m and weighs 290 tonnes.

It has been constructed on site at ground level, and it is Hebetec Engineering's task to raise the whole structure through successive 10.5 metre steps as the re-construction work proceeds, keeping the entire roof structure level during each lifting phase to a very tight tolerance. To achieve this exceptionally exacting requirement, Hebetec Engineering Ltd. is employing a special procedure.





## Train Station Chêne-Bourg, Switzerland



### Facts

Weight: 700 t  
Moving distance: 33 m

### Handling equipment

Strand jack H40: 6 pcs

### Description

To accommodate the building of a new underground train station, the old Chêne-Bourg station building in Geneva had to be moved.

In collaboration with Freyssinet Switzerland, the load was first transferred to hydraulic presses and then moved 33m on steel girders.

For the repositioning of the 700 ton building, 6 type H-40 strand jacks were used. Finally, the building could then be lowered onto the new foundation.

The challenge in this project was to maintain equal load distribution to avoid damages on the building during the move.

