1. Jack installed upside down and fixed to the object. As a result, heavy handling is avoided when extra blocking is added.

2. Krangården’s supporting towers. This picture shows 16 m high towers being used to support a girder across a tank in Århus. The girder holds the roof of the tank.

3. Krangården’s synchronous lift system. Used to lower a 1600 ton bridge deck on the Hillerød motorway in Copenhagen.

Sophisticated and stable lifting on many points

- Electronic display of pressure and movement
- Load on each lift point
- Up to 12 simultaneous lift points
- Lift points follow each other within a tolerance of two to ten mm

Our high-tech synchronous lift system handles lifting and lowering tasks with precision and reliability. With millimeter tolerances the system balances, compensates for and evens out the load between each of the up to 12 points. The actual support is provided by towers, stub columns, azobé hardwood blocks or aluminium plates. Synchronous lifting is a sophisticated and efficient technique for work with extreme loads. This process is particularly suited for constructions where many points need to be lifted simultaneously.
Technical specifications
Synchronous lift and supports

Jacking of offshore unit in Esbjerg.
The supporting towers are a mix of stub columns, aluminium blocks and azobé hardwood blocks.

Synchronous lift of existing pedestrian bridge above Motorway Ring 3 in Copenhagen.
The supporting towers are large enough to carry both jack and supports on the same tower.

Replacement of the bearing surface on the Fårø Low Bridge.
The bridge is sliding on top of the jacks to allow temperature movements from the bridge.

The synchronous lift system is centrally operated by a computer unit. Krangården’s employees have many years of experience finding solutions for complicated lifting and supporting tasks.

**SYNCHRONOUS LIFT SYSTEM**

**Function:**
At each jack (or group of jacks installed at the same outlet), a movement sensor is installed between the foundation and the object being lifted. Signals from the movement sensor are processed by the computer opening and closing a valve for the jack. When the system is operated automatically, up to 12 points (in Krangården’s system) follow each other up and/or down within a tolerance of typically two to ten mm.

**Computer readings:**
- Absolute and relative movement of the object being lifted
- Load on each lift point
- Registration of pressure and movement over time

<table>
<thead>
<tr>
<th>Hydraulic pump with 8 outlets:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Variable flow:</td>
</tr>
<tr>
<td>1.4 – 4.6 and 6.0 l/min</td>
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<table>
<thead>
<tr>
<th>Hydraulic pump with 4 outlets:</th>
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<tbody>
<tr>
<td>• Flow:</td>
</tr>
<tr>
<td>2.1 l/min</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Movement sensors:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 12 movement sensors, 1,500 mm travel capacity</td>
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<tr>
<td>• Tolerance +/- 1mm</td>
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