Overview and outlook of tower crane in China

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ZOOMLION Construction Hoisting Machinery Company
Contents

1. Brief on China Tower Crane Market
2. Development of Tower Crane Technologies in China
3. Outlook on China Tower Crane Market
Brief on China Tower Crane Market
China, the world's most influential market of engineering and construction equipment

China

<table>
<thead>
<tr>
<th>Region</th>
<th>2013</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>305000</td>
<td>290000</td>
</tr>
<tr>
<td>North America</td>
<td>140000</td>
<td>150000</td>
</tr>
<tr>
<td>Western Europe</td>
<td>120000</td>
<td>125000</td>
</tr>
<tr>
<td>Japan</td>
<td>65000</td>
<td>60000</td>
</tr>
<tr>
<td>India</td>
<td>55000</td>
<td>50000</td>
</tr>
</tbody>
</table>

Data source: International Construction

Major construction equipment markets in 2013 by off-highway research
1. Brief on China Tower Crane Market

Tower crane industry is of the fastest growth rate

**2003-2013 Sales Volume of tower cranes in China**

Data source: China Construction Machinery Association
Prosperity of tower crane market promoted by real-estate investment.

### Units: billion m²

<table>
<thead>
<tr>
<th>Year</th>
<th>Construction area</th>
<th>New construction area</th>
<th>National real-estate investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>5.079</td>
<td>1.9</td>
<td>61.7</td>
</tr>
<tr>
<td>2012</td>
<td>5.734</td>
<td>1.773</td>
<td>71.8</td>
</tr>
<tr>
<td>2013</td>
<td>6.656</td>
<td>2.012</td>
<td>86</td>
</tr>
</tbody>
</table>

### Units: ¥ hundred billion

Data source: International Construction
1. Brief on China Tower Crane Market

Stable growth of tower crane market promoted by the construction of infrastructure as well

The investment in Railway

- 2006: 2088.4
- 2007: 2500.7
- 2008: 4168.47
- 2009: 7045.27
- 2010: 5906.09
- 2011: 6300
- 2012: 6636
- 2013: 8000

Data source: China railway corporation, Founder Securities

Middle and long term plan of China Nuclear power plant

- 2001: 0
- 2002: 500
- 2003: 1000
- 2004: 1500
- 2005: 2000
- 2006: 2500
- 2007: 3000
- 2008: 3500
- 2009: 4000
- 2010: 4500
- 2020: 4500

Data source: Chinese construction of security research and Development Department

Nuclear power capacity (10 thousand kW)
Development of Tower Crane Technologies in China
## Series and models are being completed

<table>
<thead>
<tr>
<th>&lt;10t</th>
<th>10-40t</th>
<th>40-100t</th>
<th>Super tonnage</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC5010-4</td>
<td>TC6015A-10</td>
<td>ZT320-12</td>
<td>D800-42</td>
</tr>
<tr>
<td>TC5012-5</td>
<td>TC6517B-10</td>
<td>T320-16</td>
<td>D1100-50</td>
</tr>
<tr>
<td>TC5610-6</td>
<td>TC6515B-10</td>
<td>TCT7520-16</td>
<td>D1100-63</td>
</tr>
<tr>
<td>TC5013B-6</td>
<td>TC6515B-12</td>
<td>TCT7527-20</td>
<td>D1500-63</td>
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<td>T8030-25U</td>
<td>D1250-80</td>
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<td>TC6010-6</td>
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<td>L630-50</td>
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<td>LH800-63</td>
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<td>TC6016A-8</td>
<td>TC7052-25</td>
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<tr>
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<td>TC8039-25</td>
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<td>L160-12</td>
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<td>L250-16</td>
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<td>...</td>
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<td>TCT5513-8</td>
<td>TCR6055-32</td>
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<td>...</td>
</tr>
<tr>
<td>TCT7015-8</td>
<td>TCT7015-10</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>
Remarkable achievements in:
Industry Scale, Independent Innovation and Structure Adjustment

2. Development of Tower Crane Technologies in China
Large-scale production:
In 2013, 17 manufacturers with Hundred of millions sales

Total manufacturers about 400
Locate mainly in Shandong, Jiangsu and Zhejiang provinces, northeast China, Sichuan and Chongqing areas

Industry concentration is being enhanced
The typical company:
Independent innovation

1. Specialized tests for motor, gear reducer, frequency converters
2. Professional experiments for high-strength steel and large-size structures
3. Research of wind load on slewing mechanism
2. Development of Tower Crane Technologies in China

Super large tower crane by independent innovation

The biggest top slewing tower crane D5200-240

<table>
<thead>
<tr>
<th>Comparison in tops</th>
<th>China ZOOMLION</th>
<th>Germany LIEBHERR</th>
<th>France POTAIN</th>
<th>Australia FAVCO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>D5200-240</td>
<td>HC5000</td>
<td>MD3600</td>
<td>M2480</td>
</tr>
<tr>
<td>Max Load moment (kNm)</td>
<td>52000</td>
<td>50000</td>
<td>36000</td>
<td>48000</td>
</tr>
<tr>
<td>Max Load capacity(t)</td>
<td>240</td>
<td>100</td>
<td>160</td>
<td>330</td>
</tr>
<tr>
<td>Max Height (m)</td>
<td>210</td>
<td>180</td>
<td>210</td>
<td>100</td>
</tr>
</tbody>
</table>

The longest jib tower crane D1250-80

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<thead>
<tr>
<th>Comparison in tops</th>
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<th>France POTAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>D1250-80</td>
<td>HC5000</td>
<td>MD3600</td>
</tr>
<tr>
<td>Jib length</td>
<td>110m</td>
<td>100m</td>
<td>80m</td>
</tr>
</tbody>
</table>
2. Development of Tower Crane Technologies in China

The biggest top slewing tower crane **D5200-240**

**The jacking system, get the solution to be:**
even loading, synchronized and steady

**before**  
**after**

**D1250-80** the longest jib tower crane

The deformation problem of long boom with heavy load is solved.

25% less after technical innovation
2. Development of Tower Crane Technologies in China

More advanced structure adjustment sharing more market than imported tower cranes

In the past,

<table>
<thead>
<tr>
<th>Project</th>
<th>Nanjing 3rd bridge</th>
<th>Sutong road bridge</th>
<th>Wuhan Second Bridge</th>
<th>Shanghai global economic center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tower crane brand</td>
<td>Potain MD3600</td>
<td>Liebherr 380 EC-B</td>
<td>Favco M1280D</td>
<td></td>
</tr>
</tbody>
</table>

Nowadays,
Technologies for global market

Access to regional markets, designed according to the regional requirements and standards.
More international markets with competitive advantages

Data source: China 1st Construction Machinery Network
Outlook on China Tower Crane Market
Lean manufacturing with automatic production line

China’s newly added industrial robots
Intelligent and human-oriented technologies

Tower-crane Remote Management System  Tower-crane Safety Monitoring system
Customization and wider variety of tower cranes are becoming popular

For instance:
T3000-160V
Specially for the thermal power station
3. Outlook on China Tower Crane Market

Full construction of tower crane’s brand
Brand Identification and Brand Culture
Golden developing period

China urbanization rate prediction

Data source: The World Bank Database

China Housing area

Units: billion m²

Data source: Chinese statistics
World’s best companies are to contribute opportunities and more...
Views from ZOOMLION, China

Thank you!