

Grove GTK1100

Features and benefits



The world turns to the wind

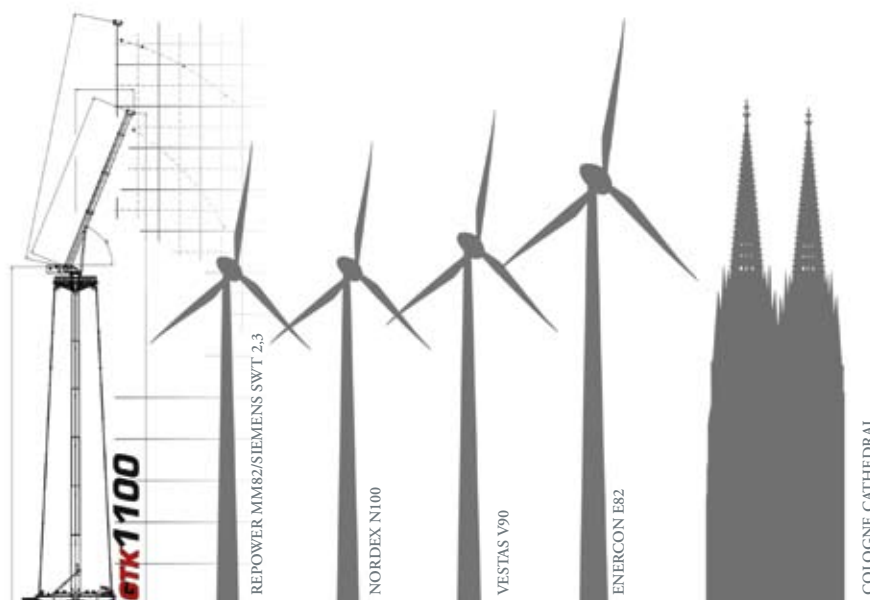


The Grove GTK1100 is one of the most distinctive cranes our industry has ever seen. It is a source of great pride for us here at Manitowoc, where we have always put an emphasis on innovation. We would like to use this opportunity to pay tribute to the customers who have added GTK1100 cranes to their fleets in the three years since we launched it at Bauma 2007. These industry pioneers had great courage and foresight to take on a completely new technology. We are happy to report that their vision has been rewarded in the most important place – on the balance sheet. The savings in time and logistics the crane offers are unlike anything else on the market.

As the GTK1100 population grows, so we have innovated and improved, bringing further savings and efficiency. For example the MEGALIFT 1500 option gives users a greater load moment. And there are further innovations too, all making the crane more productive and profitable to operate. The combined effect of increasing numbers of these cranes and greater innovation has seen it spread into new applications —from its origins in assembling wind turbines to work on power plants, industrial sites, demolition jobs etc.

We have put together this document to highlight some of the major features and benefits of the GTK1100 and to offer some insight into the practicalities of operating it. We hope it gives you an understanding of the greater profit and faster operation available through this truly innovative crane.

Eric Etchart
President
Manitowoc Cranes



- Short response time to weather changes.
 - No separate crane/boom assembly area.
 - Transport on 4 trailers only .
 - Low shipping volume.
 - Less side movements.
-
- Required space 384 m².
 - Max. ground pressure 140 t or >19 t/m² with the use of 2,5 x 3,0 m outriggers mats.

Profitable logistic advantage

Cheaper ground preparation

- Vertical erection.
- Driving on jobsite in 3 m width.
- One auxiliar crane rigging.
- Ready to lift in 6 hours.
- No interims docking of crane components
- Max. load moment: 78,5 t at 18 m radius and 107 m hook height.

*Greater environmental protection
Quick and safe assembly*

- Max. hook height: 138 m.
- Two tower positions available (76,5 m and 42,5 m).
- 360° free turning at 80 m height.
- Covered working area up to 112 m diameter.
- No minimum working radius.
- No tailswing at ground level.

Exclusive working range

GTK 1100

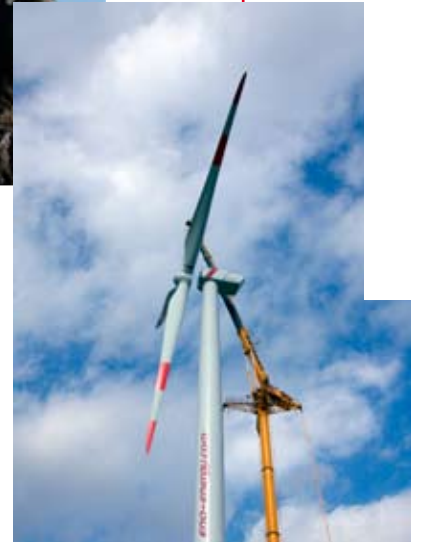
Application benefits

Wind

- Single and remote sites.

Most qualified for:

- Wind parks with big distance between the single tower foundations.
- Maintenance / Services for wind turbines or blades (currently worldwide approx. 20 000 units).
- Stable system up to 10 beaufort (130 km/h).
No need to lay boom down.



Difficult terrain and working conditions

- Difficult environmental circumstances that are hard to access.
- Bad infrastructures.
- Mountains and narrow sites.
- More installations over time.
- Quick shift in between foundations.



Application benefits

Industry / Chemicals / Refinery / Demolition

- Driving height at 4 m only.
- Plant extensions, maintenance, shut downs.
- Tower crane rigging.
- Vertical erection requires a minimum of space.



City centers

- Lifts of air-condition equipment on high buildings and skyscrapers.
- Jobsites in Cities with special demands to height, working speed, space and influence on traffic.



Cost savings

LARGE MOBILE CRANE (Enercon E70 on 98 m tower)



Ground preparation in m ²	2400 + 40 length for jib
Transport units	8
Assembly time in hour	24
Investment (crane, trucks trailers)	130 %

- GTK requires 25 % of space only
- GTK requires 50 % of transport units only
- GTK assembles in 40 % of the time
- GTK reduces investment by 25 %

MEDIUM SIZED CRAWLER CRANE (GE70 on 98 m tower)



Ground preparation in m ²	600 + 100 length for jib
Transport units	20
Assembly time in hour	24
Investment (crane, trucks trailers)	127 %

- GTK requires 25 % of space only
- GTK requires 25 % of transport units only
- GTK assembles in 40 % of the time
- GTK reduces investment by 22 %

LARGE LATTICE MOBILE CRANE (Vestas V90 on 102 m tower)



Ground preparation in m ²	600 + 120 length for jib
Transport units	19
Assembly time in hour	24
Investment (crane, trucks trailers)	133 %

- GTK requires 25 % of space only
- GTK requires 26 % of transport units only
- GTK assembles in 40 % of the time
- GTK reduces investment by 25 %



GTK1100 (Vestas V90 on 105 m tower)

Ground preparation in m ²	600
Transport units	4
Assembly time in hour	6
Investment (crane, trucks trailers)	100 %

Vertical erection!
≈ 33 % savings

4 is less than 20!
≈ 29 % savings

6 hours for assembly!
≈ 60 % savings

Low investment!
≈ 27 % savings

LARGE CRAWLER CRANE (Enron 1.5SL on 102 m tower)



Ground preparation in m ²	900 + 120 length for jib
Transport units	22
Assembly time in hour	30
Investment (crane, trucks trailers)	150 %

- GTK requires 50 % of space only
- GTK requires 22 % of transport units only
- GTK assembles in 33 % of the time
- GTK reduces investment by 34 %

LARGE CRAWLER CRANE (Repower MM82 on 95 m tower)



Ground preparation in m ²	400 + 100 length for jib
Transport units	20
Assembly time in hour	26
Investment (crane, trucks trailers)	140 %

- GTK requires 50 % of space only
- GTK requires 25 % of transport units only
- GTK assembles in 33 % of the time
- GTK reduces investment by 29 %

Ground preparation in m ²	600 + 120 length for jib
Transport units	19
Assembly time in hour	24
Investment (crane, trucks trailers)	133 %

- GTK requires 25 % of space only
- GTK requires 26 % of transport units only
- GTK assembles in 40 % of the time
- GTK reduces investment by 25 %

LARGE LATTICE MOBILE CRANE (Enercon E82 on 98 m tower)



In the field - Testimony

Following established success on a range of job sites around Europe, the first Grove GTK1100 in Asia arrived in the middle of 2009. The crane was immediately put to the test on major wind farm installations in Inner Mongolia, China. The unique, high-telescoping crane helped install wind turbines with tower heights of over 70 m and turbine sections of up to 75 t – all in desert conditions.

On the Zhurihe CHNG Wind Farm, some 100 km from Tong Liao City, China Power Equipment Installation Engineering Co. Ltd. (CPIE), the owner of the GTK1100, installed 90 wind turbines in a three-phase program.



Phase I of the project, saw the company use the GTK1100, together with several Grove GMK7450 all terrain cranes, to install 33 wind turbines with capacities of 1.5 MW. An additional 33 windmills of 1.5 MW capacity were installed in Phase II. All these turbines weighed 60 t and had tower heights of 70 m. Phase III required the installation of 24 windmills with a 2 MW capacity. Zhurihe Wind Farm is situated in an area that used to be a grass-land tourist attraction, but is now turning to desert because of drought, soil erosion and water loss. But transporting the 140 m tall crane was a surprisingly easy process, despite the desert conditions.



Zhu Jingcheng,
*chairman of China Power Equipment
Installation Engineering Co. Ltd.,
(CPIE), owner of the first GTK1100
in China.*

“There was no other mobile crane in the world that could handle this job, given the height and working radius required. The GTK combines a perfect blend of short working radius, tall height and strong capacity that is needed for this type of work. Because the GTK1100 is relatively lightweight, we didn't have any difficulties with setup. We were also able to drive the GTK1100 with the superstructure attached, reducing our transport convoy, which made things cheaper and faster for us.”

“The main roads are flat, straight and well-prepared, so that wasn't a problem,” said Zhu Jingcheng, chairman of CPIE. “But around the windmills' foundations there were piles of loose soil, which means heavier cranes couldn't setup nearby. With the GTK1100 there were no such problems.”

CPIE transported the GTK with its superstructure attached - it was the first company to do this - reducing the number of trailers for transport from six to just four. Travelling in this configuration also meant a smaller assist crane could be used as the maximum load is 17.5 t for the GTK1100's outriggers.

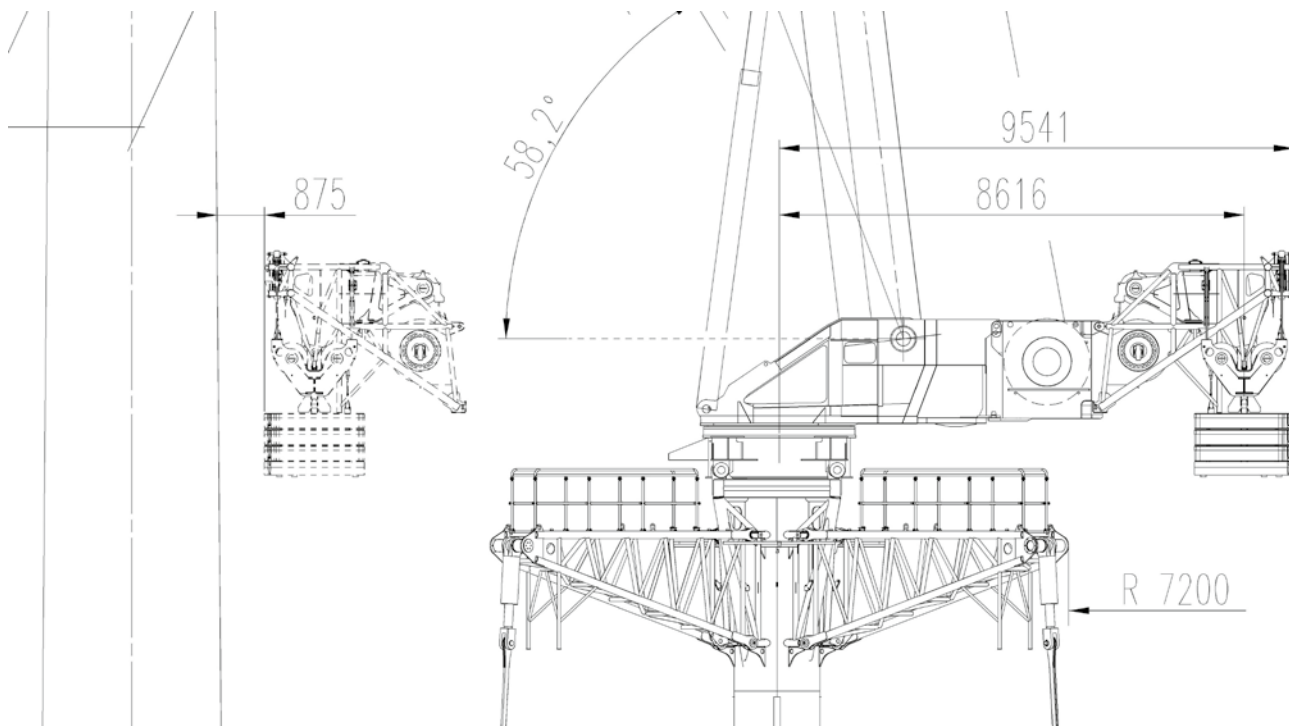
The success of the GTK1100 during its first few months in China has convinced CPIE of the benefits of the technology. The company has since ordered its second unit and is expected to receive two more in future.



****Representative Representative****,
*at Shang Guo Tong Yuan, one of
China's leading wind turbine manufacturers.*



“We were really impressed with the Grove GTK1100. It is truly unlike anything else in the market and we believe its design can bring cost and time savings to the assembly of our wind turbines. Our company is at the forefront of helping China meet its ambitious targets for wind power and we need to utilize the latest technology. The Grove GTK1100 represents the very latest in lifting innovation.”



GTK1600

3 MW rigging

130 + @ 100 m hook height

Less tailswing

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Alphaville

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TaiAn

Zhangjiagang

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Charlieu

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