

# Grove All-Terrain Crane

## Features and benefits



## Introduction

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## Grove Range

## All-terrain relatives

|                              | GMK7450 | GMK6400 | GMK6300L | GMK5220 | GMK5170 | GMK5130-2 | GMK5110-1 | GMK5095 | GMK4100L | GMK4100 | GMK4080-1 | GMK3055 | GMK3050-1 | GMK2035E |
|------------------------------|---------|---------|----------|---------|---------|-----------|-----------|---------|----------|---------|-----------|---------|-----------|----------|
| MEGATRAK                     | •       | •       | •        | •       | •       | •         | •         | •       | •        | •       | •         | •       | •         |          |
| Top steered MEGATRAK         | •       | •       | •        | •       | •       | •         | •         | •       | •        | •       | •         | •       | •         |          |
| All-wheel steered            | •       | •       | •        | •       | •       | •         | •         | •       | •        | •       | •         | •       | •         | •        |
| Steer by wire                |         | •       | •        | •       | •       | •         | •         | •       | •        | •       | •         | •       | •         |          |
| ECOS                         | •       | •       | •        | •       | •       | •         | •         | •       | •        | •       | •         | •       | •         | •        |
| Carrier ECOS                 |         | •       | •        | •       | •       | •         | •         | •       | •        | •       | •         | •       | •         |          |
| EKS 5 light                  |         |         |          |         |         | •         | •         | •       | •        | •       | •         | •       | •         | •        |
| EKS 5                        | •       | •       | •        | •       | •       | •         | •         | •       | •        | •       | •         | •       | •         |          |
| MEGAFORM                     | •       | •       | •        | •       | •       | •         | •         | •       | •        | •       | •         | •       | •         |          |
| TWIN-LOCK                    | •       | •       | •        | •       | •       | •         | •         | •       | •        | •       | •         | •       | •         |          |
| Hydraulic luffing jib        |         |         | •        | •       | •       | •         | •         | •       | •        | •       | •         | •       | •         | •        |
| Integrated heavy duty jib    |         |         |          |         | •       | •         | •         | •       | •        | •       |           |         |           |          |
| New carrier cab design       |         | •       | •        |         |         | •         | •         | •       | •        | •       |           |         |           |          |
| Tilttable superstructure cab | •       | •       | •        | •       | •       | •         | •         | •       | •        | •       | •         | •       | •         | •        |
| MegaWingLift                 | •       | •       |          |         |         |           |           |         |          |         |           |         |           |          |
| CraneStar                    | •       | •       | •        | •       | •       | •         | •         | •       | •        | •       | •         | •       | •         | •        |
| MegaDrive                    |         | •       |          |         |         |           |           |         |          |         |           |         |           |          |



## The names that mean cranes

Manitowoc Cranes is a carefully chosen collection of crane brands with a single focus – providing customers with the most advanced, comprehensive range of lifting solutions available. Our passion for the business shines through in the names known for creativity and innovation the world over: Grove, Manitowoc, National Crane and Potain. Even our support service Manitowoc CraneCare is designed to convert our love of cranes into substantial value for the customer. One thing is certain. Turning our passion for cranes into quality products will always be core of Manitowoc Cranes. That is why we spelled out our vision, in what we call our Passion Statement: «Working together providing premium lifting solutions.»

From our headquarters in Manitowoc, Wisconsin, USA, we oversee a global manufacturing, service and sales network.

Major manufacturing facilities include:

**Wilhelmshaven, Germany:** All Terrain Cranes, Grove

**Niella, Italy:** All Terrain – and Rough Terrain Cranes, Grove; Tower Cranes, Potain

**Shady Grove, USA:** All Terrain Cranes, Grove; Rough Terrain – and Truck Mounted Cranes, Grove; Boom Trucks, National Crane

**Manitowoc, USA:** Crawler Cranes, Manitowoc

**Charlieu, France:** Tower Cranes, Potain

**Moulins, France:** Tower Cranes, Potain

**Zhangjiagang, China:** Tower Cranes, Potain

**Pune, India:** Tower Cranes, Potain

**Porto, Portugal:** Tower Cranes, Potain



# GROVE All Terrain manufacturing in Europe



## Wilhemshaven (Germany)

- Founded : 1946
- Area : 200 000 sqm
- Engineering : Development of all Grove AT products
- Manufacturing : GMK4080-1, GMK4100, GMK4100L, GMK5095, GMK5110-1, GMK5130-2, GMK5170, GMK5220, GMK6300L, GMK6400, GMK7450, GTK1100



## Niella Tanaro, Italy

- Founded : 1990
- Area : 102 000 sqm
- Manufacturing : GMK2035E, GMK3050-1, GMK3055, GSK55, TMC540

Both facilities produce our mobile cranes with a «lean manufacturing» perspective. This creates a high productivity and an ideal cooperation with our quality suppliers: Mercedes Benz (engines), ZF and Allison (transmission), Cummins (engines), Kessler (axles), Telma (retarder), Montan (cylinders) etc.



The facilities comply to the quality standard of ISO9001, but we constantly develop our processes to optimise reliability and durability, through continuous improvement. Latest improvements include:

- water based paintings only,
- hydraulic hoses with ceramic cover,
- hydraulic connection with zinc-nickel-alloy.



## Performance

- MEGATRAK™ independant suspension.
- All wheel steering.
- Steer by wire technology.
- Driving with full counterweight on site.
- Hybrid drive line.
- Brand label componants.

Better manoeuvrability  
on jobsite - saves time

- Twin-lock pinning system.
- Hydraulic luffing jib.
- Integrated heavy duty jib.
- Self rigging.
- Easy to install hoists.

High capacities and easier  
rigging - creates new jobs

- Tilttable superstructure cab.
- Ergonomic carrier cab.
- High level of standardized options.
- EKS/ECOS.

Higher ergonomic standard  
Reduces driver fatigue

- Comprehensive product portfolio.
- Global service support.

Solution provider  
Manitowoc is a partner

# MEGATRAK™ premium

## Independent suspension

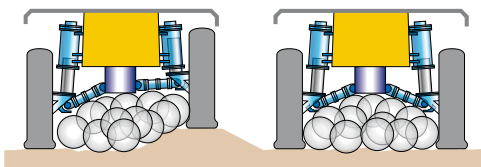
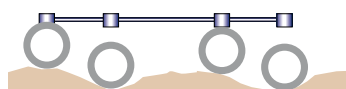
MEGATRAK™ is Grove's patented independent suspension and all-wheel steer system. Each wheel is able to remain on the ground at all times, so that stresses and weight are not continually transferred between axles.

Traditional suspension systems may raise the body of the crane, but do not increase ground clearance. MEGATRAK™ does, as the diffe-

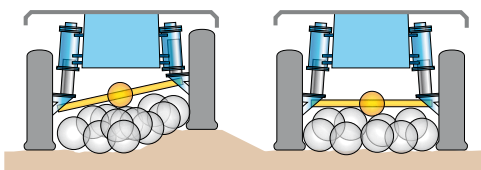
rential is attached to the base of the carrier, offering a ground clearance up to 600 mm. Suspension can be raised or lowered (both front/back and side to side) directly from the carrier cab and automatically levelled for road travel.

MEGATRAK™ also allows the use of a deeper carrier cross section, which improves the overall torsional strength of the crane.

MEGATRAK™



RIGID AXLE



However, MEGATRAK™ is not just about a comfortable and confident ride. The use of independent struts reduces the weight of the suspension system. These features make Grove all-terrains the strongest cranes available, with optimum lift characteristics.

Once you've experienced MEGATRAK™ you'll really appreciate the difference.



### Reduced maintenance:

- Reliable suspension system.
- Same suspension on almost all models.
- Driveline remains aligned all the time.
- Steering linkage is protected (positioned directly under the chassi).



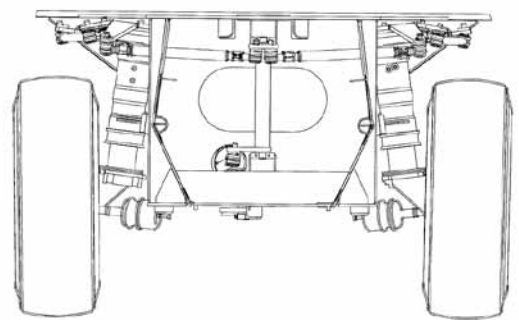
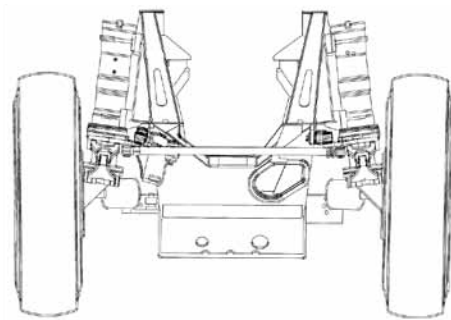
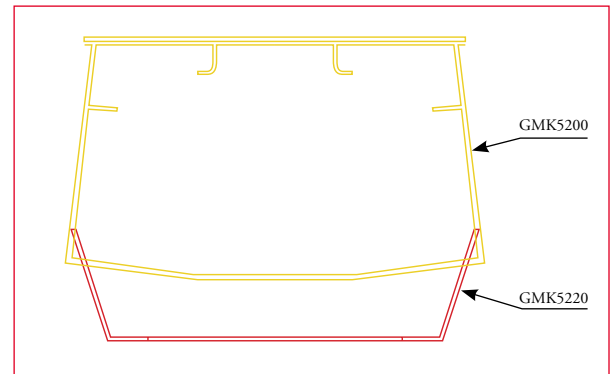
# MEGATRAK™ independent suspension

## Top steered MEGATRAK™ cylinders

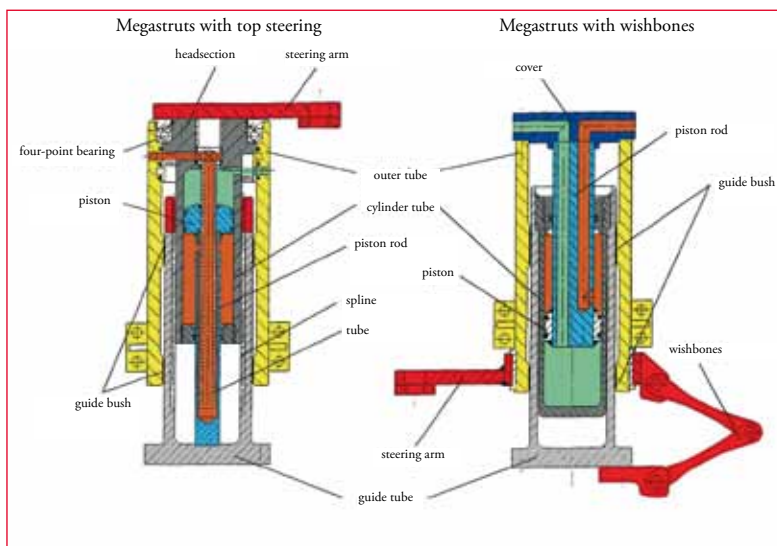
The latest design of Megatrak™ steering technology with top steered Megatrak™ cylinders allows a deeper cross-section of the frame for greater strength.

This technology is used on GMK5170, GMK5220 and GMK7450.

Advantage of top steering for the carrier frame



## Advanced MEGATRAK™ steering technology



Top steering Megatrak





## All-wheel steer

An easy to use all-wheel system gives the best steering on or off highway, eliminating tyre scrub and stresses on non steering axles.



Exceptional manoeuvrability allows even the largest, fully rigged GMK to get as close to the lift as possible.



Other systems, where one or more “dead weight” hanging axles remain fixed – lead to higher axle loads, driveline maintenance problems, increased ground pressure and tyre wall stress.

All-wheel steer enables a fully laden crane to distribute weight evenly across all axles.





# Steer by wire

The rear 2 axles are steered by wire. Up to 20 km/h the 2 rear axles are steering depending on the driving mode (crab steer and minimum turning radius) and the speed in optimised angle.

For highway travelling the 4<sup>th</sup> axle is fixed straight and up to 60 km/h axle 5 is steering in an optimised angle depending on the front axles and the speed.

The conventional mechanical steering is replaced by a hydraulic-electronic steering system.



Highway travel mode



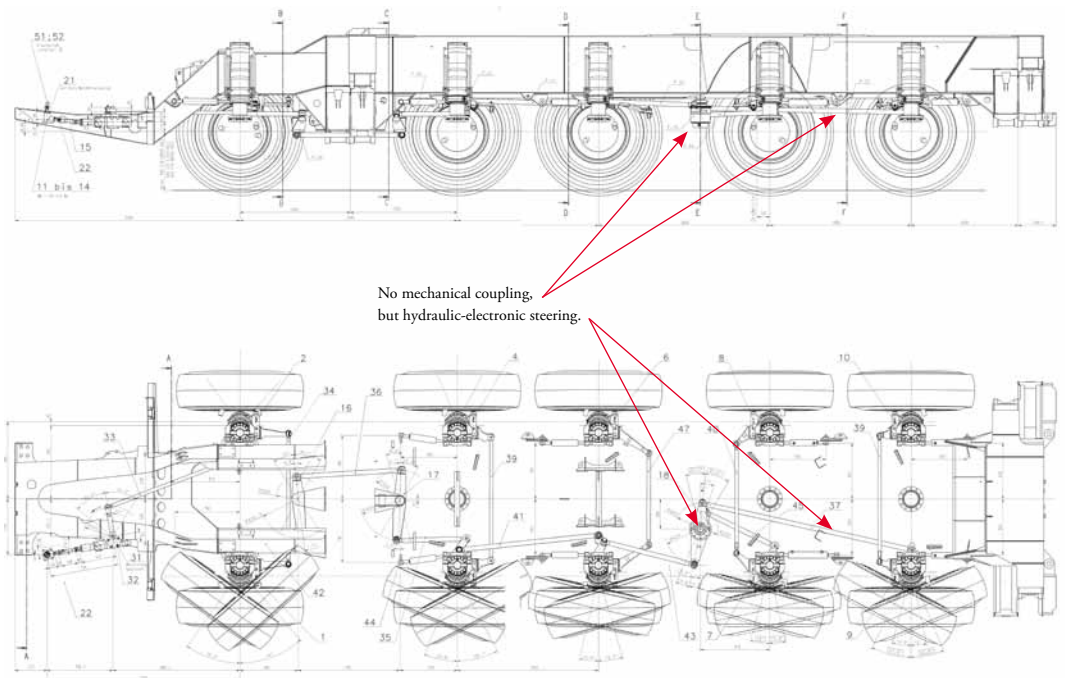
Crab steer mode



Minimum turning radius mode



Manual mode



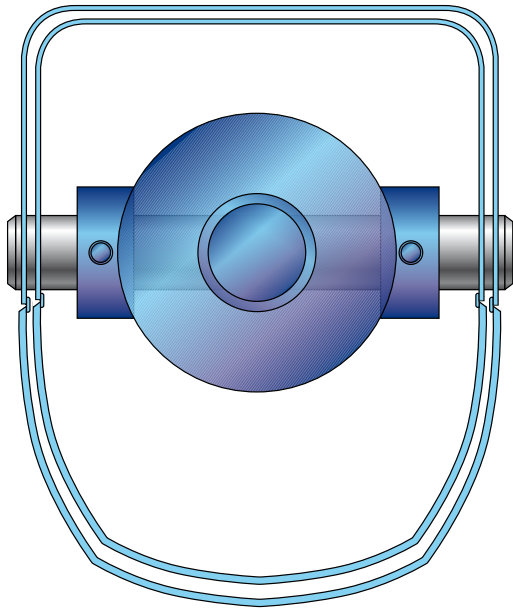
No mechanical coupling,  
but hydraulic-electronic steering.

## Advantages:

- Precise steering.
- Higher driving comfort.
- Reduced tyre wear.
- Economy of space by loss of the longitudinal push rods.
- More space for higher chassis.
- Weight reduction in spite of higher form stability.
- Reduction of costs by loss of the mechanical lock.
- Reduce of tire abrasion due to electronic controlled steering up to 60km/h.
- Very convenient way of steering.
- Highway travel mode.
- Crab steer mode.
- Minimum turning radius mode.
- Manual mode.

# TWIN-LOCK™

TWIN-LOCK™ is a fully hydraulic system with electronic controls. It features a single telescopic cylinder that uses two horizontally-mounted pins to move a boom section into the required position. The use of two pins increases security and their position in the side of the boom means they operate in the neutral zone. The use of a single telescope cylinder reduces weight used elsewhere to strengthen the crane, and increases lifting capacity.

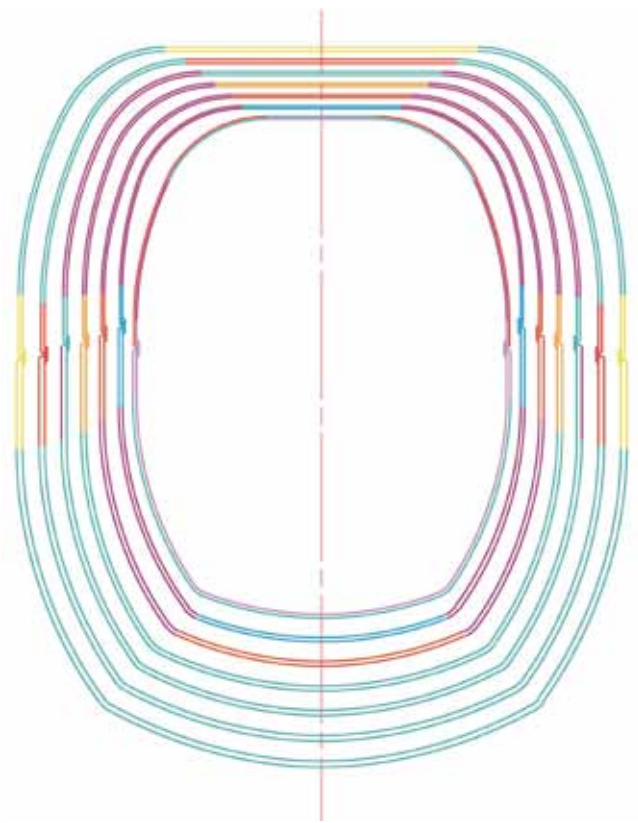
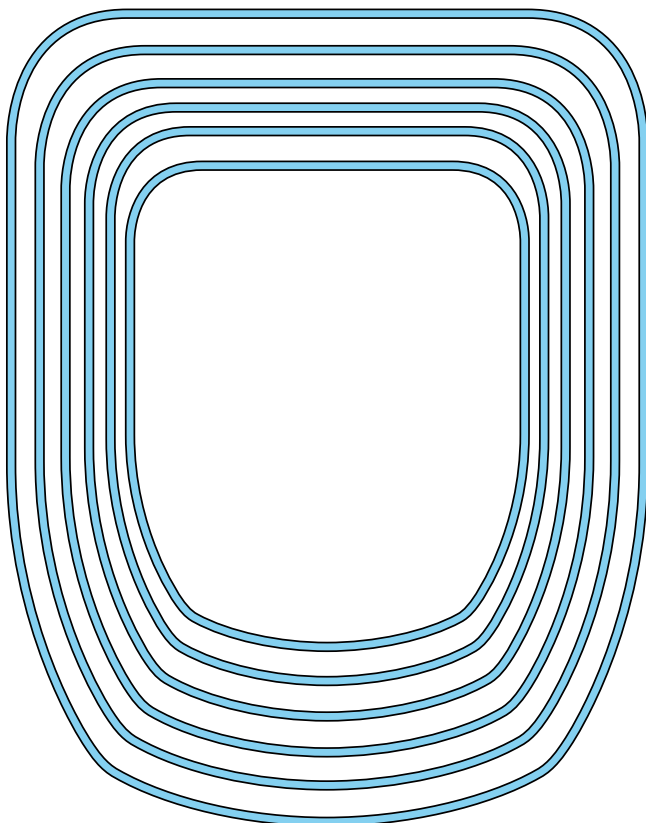


The MEGAFORM™ boom design incorporates a “U” shaped cross-section, which provides a natural cradling position for boom sections.

Large wear pads provide superior boom alignment when telescoping, and allow an excellent transition of weights between sections.



This leads to an intrinsically stronger system. In addition to less weight, a larger cross-section area can be used, giving greater lifting capacity at all radii.





# ECOS

## Electronic Crane Operating System

ECOS (Electronic Crane Operating System) enables control of the entire crane's principle operations.

Simple programming eases lift planning and a supply of essential information allows full concentration on the lift itself.



### Advantages:

- Telescoping mode automatic.
- Telescoping mode semi automatic.
- Adjustment and readout of all operating speeds.
- Adjusts speeds automatically when jib extensions fitted.
- Operating data on all crane functions.
- Operating data on power unit.
- Constantly running data checks and data updates.
- Error code readouts.
- ECOS is run from three identical control boxes. Should unit malfunction, crane operation will revert to the functioning units.
- Although running separately ECOS also supplies any required information to the EKS Load Moment indicator.

Latest models feature ECOS system also for the carrier functions.

The ECOS screen is integrated in the carrier cab providing information for engine and transmission functions, diagnostics, warnings and error codes.

Carrier operations such as suspension and MEGATRAK™ controls, differentials and steering modes will be controlled via ECOS as well.

# EKS 5 / EKS 5 light

Monitoring the lifting condition of the crane at all times EKS works together with, but independently of the ECOS as a complete command and control system or separately as load moment indicator.

Continually running fault analysis, the system advises service codes which can be transmitted to any Crane CARE centre, world-wide, allowing fast accurate investigation and recommendation.

**The EKS 5 features in addition a full graphic display:**

- Rear lighting.
- Graphic of boom telescoping %.
- Shows loadcharts.
- Allows selection of loadchart sections.



**The EKS 5 light features a semi graphic display:**

- Easy to use.
- Clear display.
- Ergonomic layout.



# Ergonomic cabs

## Carrier cab

### Convenience and ergonomic excellence

- Better cab soundproofing thanks to the new plastic cladding.
- The panoramic windscreen gives excellent all-round visibility.
- Optimised cab access.
- Superior material processing quality.
- Headlamp installation optimised for easier bulb replacement.
- Air-conditioning and heating system come with a timer switch as standard.
- Air-suspension, reclining and ergonomically optimised seats.

### Drive and brake Tempomat control unit

- Acceleration and braking - two functions combined in one unit.

### Integrated ECOS display screen

- Allows operation of suspension, differentials, separate steering, and level regulation beneath the unit.
- Displays oil and water temperature, fuel level, battery and engine speed.
- Provides fault warnings for easy fault detection and trouble-shooting.

### Dashboard

- Dazzle-free instrument cluster offers reduced sun glare, and enables the most important data to read at a glance.



## Superstructure cab

Grove's 20° hydraulic tilting superstructure cab gives the operator an improved and more comfortable view of the lift.

### Advantages:

- Improved lift and operator performance
  - better views and increased comfort means lifts are completed quicker and accurately.
- Increased view of the lift 0°-20° tilt capability gives better views.



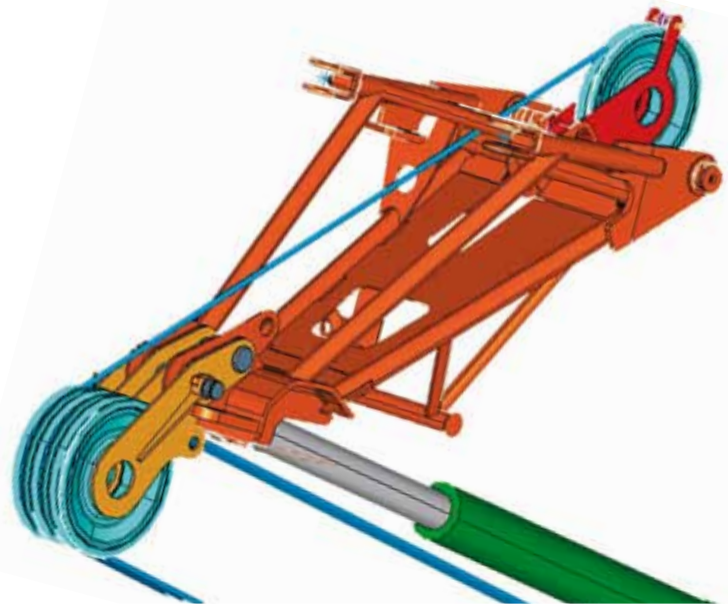


# Hydraulic jib

## Integrated heavy duty jib

### Advantages:

- 2 jibs in 1.
- Increased capacities for 2 hook operations.
- Increased radius when working under a roof.
- Easy rigging and handling.
- Flexible to use due to hydraulic adjustment.
- Included in taxi configurations with swingaway.



## Hydraulic luffing jib

Grove hydraulic jibs can be offset to luff under load from  $0^{\circ}$  -  $40^{\circ}$ .

The hydraulic luffing jib is controlled from the operator cab and can be used with any boom and jib configuration.

Movement is continually monitored by the EKS system, for maximum safety.

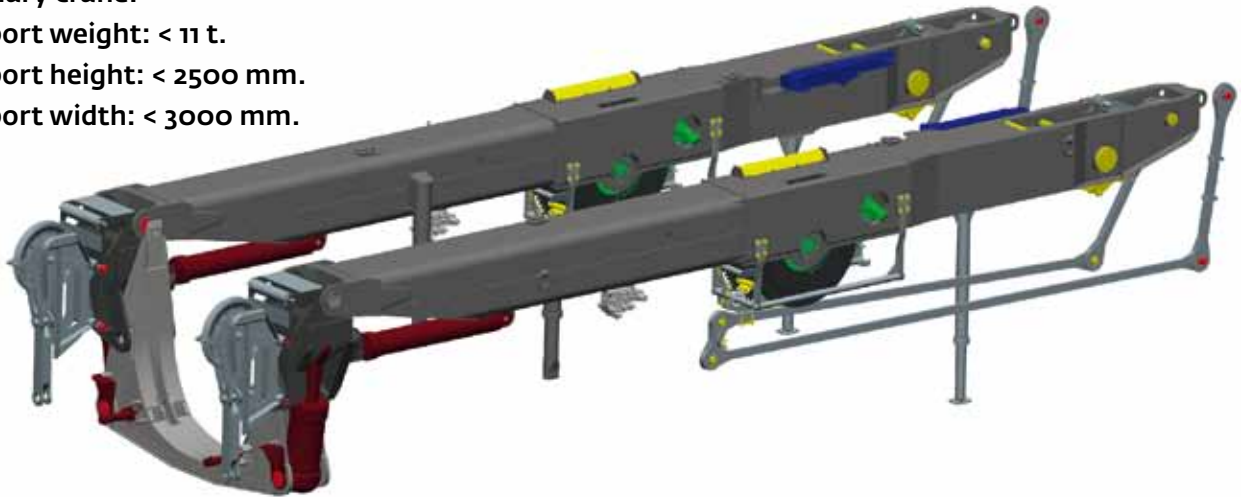
These jibs can also be conveniently stowed alongside the boom for secure road travel.

# Manitowoc innovations

## MegaWingLift

The new patented **self-rig** MegaWingLift reduces transportation and erection costs to a minimum. Can be installed without the need for an auxiliary crane.

- Transport weight: < 11 t.
- Transport height: < 2500 mm.
- Transport width: < 3000 mm.



CraneStar: An asset management tool with many new customer benefits!

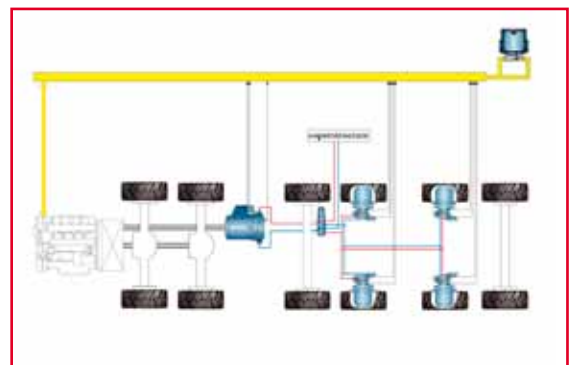
- Remotely monitors key crane functions and diagnostics.
- Provides timely data to help make fact-based decisions regarding crane productivity and utilization.
- Helps monitor intervals for scheduling routine maintenance.
- Increases security, which may lead to reduced insurance costs.
- Provides machine operation history to help maximize resale value.
- Monitor jobsite locations and working conditions from your home office.
- Easy data retrieval and customized reporting.

## MegaDrive™

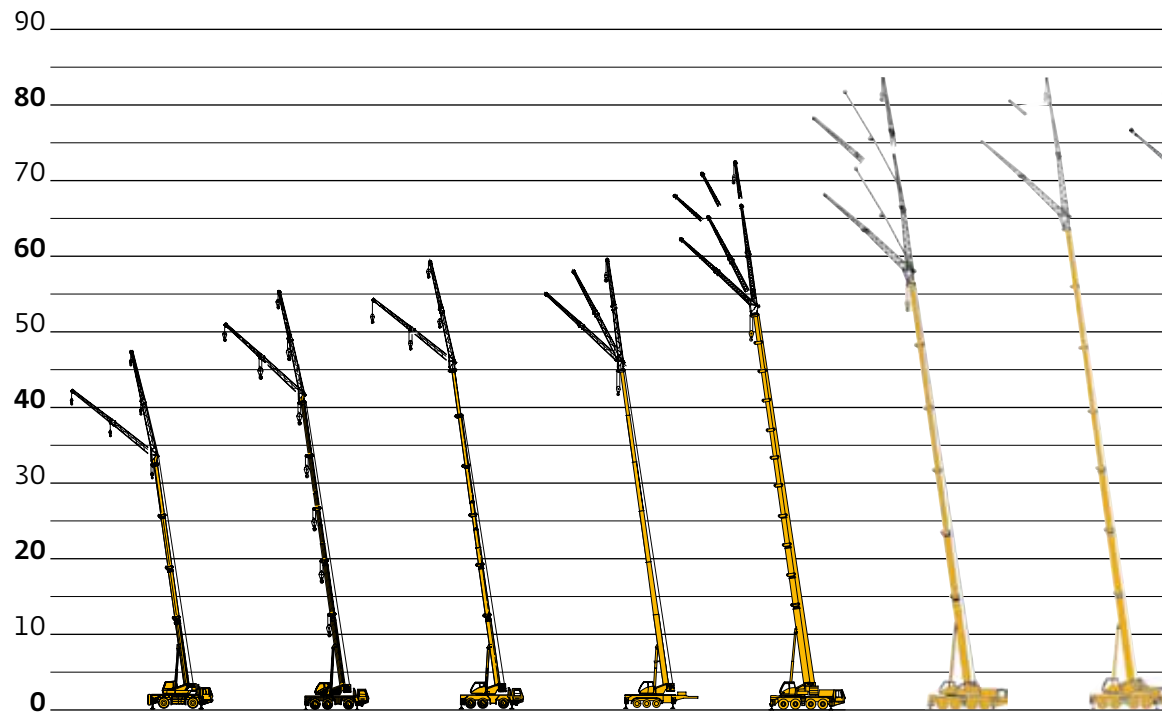
A combination of conventional drive at the front and hybrid drive for slow speed.

That creates the following advantages for you:

- Automatic on/off of MegaDrive: over 25km/h off, less than 20 km/h on.
- Better traction in bad surface conditions.
- Longer lifecycle of parts because of less direct contact.
- Smooth acceleration from standstill.



# GMK Range







|  |                     |                        |                         |                         |                        |                         |                         |                         |
|--|---------------------|------------------------|-------------------------|-------------------------|------------------------|-------------------------|-------------------------|-------------------------|
|  | t@m                 | 40,0 @ 2,5             | 50,0 @ 3                | 55,0 @ 2,5              | 55,0 @ 2,5             | 80,0 @ 2,5              | 100,0 @ 2,5             | 100,0 @ 2,5             |
|  | tm <sub>max</sub>   | 105,0                  | 159,0                   | 159,0                   | 159,0                  | 238,0                   | 295,0                   | 295,0                   |
|  | m                   | 8,9 - 29,0             | 9,6 - 38,0              | 9,6 - 43,0              | 9,6 - 43,0             | 11,0 - 51,0             | 11,3 - 52,0             | 11,65 - 60,0            |
|  | m                   | 8,5 - 15,0             | 8,7 - 15,0              | 8,7 - 15,0              | 8,7 - 15,0             | 8,7 - 21,0              | 10,0 - 27,0             | 10,0 - 22,0             |
|  | t@m <sub>max</sub>  | 0,8 @ 34<br>(1,2 @ 26) | 0,7 @ 42<br>(0,9 @ 34)  | 0,7 @ 44<br>(0,7 @ 38)  | 0,7 @ 44<br>(0,7 @ 38) | 0,8 @ 52<br>(0,8 @ 46)  | 1,0 @ 58<br>(1,5 @ 48)  | 0,8 @ 54,<br>(1,0 @ 50) |
|  | t@m <sub>max</sub>  | 2,0 @ 44<br>(8,0 @ 29) | 2,8 @ 53<br>(10,0 @ 38) | 2,4 @ 58<br>(7,6 @ 43)  | 2,4 @ 58<br>(7,6 @ 43) | 1,9 @ 74<br>(7,2 @ 51)  | 1,8 @ 79<br>(9,5 @ 52)  | 2,0 @ 82,<br>(8,0 @ 60) |
|  | ② kW                | —                      | —                       | —                       | 104                    | —                       | 129                     | 129                     |
|  | m                   | 4 x 4 x 4              | 6 x 4 x 6<br>*6 x 6 x 6 | 6 x 4 x 6<br>*6 x 6 x 6 | Depends on truck       | 8 x 6 x 8<br>*8 x 8 x 8 | 8 x 6 x 8<br>*8 x 8 x 8 | 8 x 6 x 8<br>*8 x 8 x 8 |
|  | ① kW                | 205                    | 260                     | 260                     | Depends on truck       | 290                     | 295 (*335)              | 295 (*335)              |
|  | %                   | 60                     | 82                      | 82                      | —                      | 70                      | 70                      | 70                      |
|  | km/h <sub>max</sub> | 84                     | 80                      | 80                      | 80                     | 85                      | 85                      | 85                      |
|  | t                   | 24                     | 36                      | 36                      | 40-42                  | 48                      | 48                      | 48                      |





## All terrain relatives







| Model   |  |  |  |  |
|---------|---|---|---|---|
| GCK3045 | 45 t  | 34 m  | 6,3-10,2 m  | 47 m  |







| Model   |  |  |  |
|---------|---|---|---|
| GTK1100 | 150 t   | 60 m  | 143 m   |



| Model |  |  |  |  |
|-------|---|---|---|---|
| GSK55 | 55 t  | 43 m  | 8,7 - 15 m  | 60 m  |



| Model  |  |  |  |  |
|--------|---|---|---|---|
| TMC540 | 40 t  | 31 m  | 7,9-13,7 m  | 47 m  |

## Manitowoc Cranes

### Regional headquarters

#### Manitowoc - Americas

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### Regional offices

#### Americas

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Alphaville

##### Mexico

Monterrey

##### Chile

Santiago

#### Europe, Middle East, Africa

##### Czech Republic

Netvorice

##### France

Baudemont

Cergy

Decines

##### Germany

Langenfeld

##### Hungary

Budapest

##### Italy

Lainate

##### Netherlands

Breda

##### Poland

Warsaw

##### Portugal

Baltar

##### Russia

Moscow

##### U.A.E.

Dubai

##### U.K.

Buckingham

#### China

Beijing

Chengdu

Guangzhou

Xian

#### Greater Asia - Pacific

##### Australia

Adelaide

Brisbane

Melbourne

Sydney

##### India

Calcutta

Chennai

Delhi

Hyderabad

Pune

##### Korea

Seoul

##### Philippines

Makati City

##### Singapore

### Factories

#### Brazil

Alphaville

#### China

TaiAn

Zhangjiagang

#### France

Charlieu

Moulins

#### Germany

Wilhelmshaven

#### India

Pune

#### Italy

Niella Tanaro

#### Portugal

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Fânzeres

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Manitowoc

Port Washington

Shady Grove

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