

## Harbour Cranes



## Launching into Professional Cargo Handling **HMK 170 E Mobile Harbour Crane**



# HMK 170 E Mobile Harbour Crane

## Suitable for All Handling Applications

For many decades, Gottwald Port Technology has continuously set visible milestones in material handling in ports all over the world – with Mobile Harbour Cranes providing lifting capacities of up to 200 t and radii of up to 56 m.

Mobile and versatile, and equipped with spreaders, motor grabs and other types of lifting gear, Gottwald Mobile Harbour Cranes allow for flexible, reliable and rapid discharging of:

- containers
- all types of bulk and general cargo
- pallets
- heavy loads (project cargo).

As 4-rope grab cranes with a second hoist, Mobile Harbour Cranes are particularly suited to professional continuous-duty handling of bulk material and scrap.

In order to advance the competitive position of crane operating companies throughout the world, Gottwald Port Technology has continued to extend

its product range. At the same time, the existing Gottwald products have also been enhanced and their details finely tuned to meet the requirements of ports, stevedores and the various vessel classifications.

### World Market Leader

Having sold some 1,300 units, Gottwald Port Technology is the world's no. 1 in the field of Mobile Harbour Cranes. In more than 90 countries, the technological leading-edge, achieved thanks to Gottwald's diesel-electric drive design and the versatility of its products, guarantees:

- excellent efficiency
- high-speed handling rates
- high reliability and availability
- excellent mobility.

### HMK 170 E Mobile Harbour Crane

These excellent features can naturally be found in the HMK 170 E, a 63-tonne crane ideally suited to all material handling applications in ports with quay facilities for ships and feeder vessels with beams of up to 18 m, for example.

### Customers Profit from Experience





The many years of service provided by the more than 130 HMK 170 E cranes supplied reflect the renowned high quality of Gottwald Mobile Harbour Cranes.

The resilient steel structure used in both the HMK 170 E and the 4-rope grab crane, HMK 170 EG, meets the requirements of FEM class A8 for grab operation and provides a long crane service life.

The HMK 170 E is intended as a universal machine for all applications including container handling and bulk operation with motor grab.

On the 4-rope grab crane, the HMK 170 EG, the components such as the hoists, slew ring and the rope pulleys are adapted to the requirements of professional bulk handling operation.

### Suitable for the Following Vessels

Container Vessel Size		Barge/Coaster	Feeder
	Capacity [TEU]	80 – 500	300 – 1,200
	No. of rows	≤ 6	≤ 8
	Beam [m]	~ 17	~ 18
			
Bulk Carrier Size		Barge/Coaster	Handysize
	Capacity [DWT]	≤ 5,000	≤ 30,000
	Beam [m]	5 – 17	18 – 28
			





HMK 170 E handling steel coils at the Port of Antwerp, Belgium

The highlights of the Gottwald HMK 170 E Mobile Harbour Crane include:

- high lifting capacity
- 32-tonne grab curve (A7 classification), 25-tonne grab curve in A8 classification) with HMK 170 EG 4-robe grab version
- modular design of the superstructure
- option of fitting an additional axle
- increased service and maintenance-friendliness
- refuelling during operation.



HMK 170 E handling containers at the Port of Doha, Qatar

## Efficient Use of Energy – Cuts Costs and Protects the Environment

Gottwald cranes use electrical drive technology which means they use the energy source most commonly found in ports, are economical and ecologically compatible. The diesel-generators fitted on-board guarantee optimum efficiency, the lowest possible fuel consumption and minimum exhaust emissions.

Since they are already designed to be powered by electricity, Gottwald Harbour Cranes are perfectly suited to external power from the terminal's own mains supply. This improves the efficiency of the machines still more. In addition, this cuts exhaust gases from the cranes to zero and has the added advantage of considerably reducing noise levels, with the corresponding positive contribution to a terminal's ecology rating.

**With their electric drive concept, Gottwald machines are ideally placed to make use of alternative, environmentally-aware generated electrical energy which is, today, already being harvested from the wind, sun and geothermal sources and fed into the power grids**





Crane testing at factory



Refuelling during operation

### Superstructure

In the HMK 170 E superstructure, all the machinery units, i.e.

- diesel-generator set
- hoisting and slewing gear units
- hydraulic unit and
- electrical equipment

are housed in enclosed rooms. This arrangement provides a neat grouping and excellent accessibility for servicing. The individual rooms are designed as modules and, when necessary, can even be completely dismantled.

To allow use of a smaller counterweight, the hoist is arranged at the rear of the machinery house. The hoist is no longer located below the tower. As a result, it is easily accessible for servicing – both from above and from the side. The same arrangement applies to the room housing the diesel-generator set. In addition, the hydraulic unit has an upright design. As a result, it can be easily lifted out for repair work.

### Chassis and Stabilisers

The compact 4-axle chassis with its small turning radii provides excellent manoeuvrability. This means that the crane can be positioned next to the ship without any difficulty – even if space is very limited.

The HMK 170 E chassis is designed such that a fifth axle can be fitted if the quay is able to withstand only restricted loadings. In addition, the chassis is prepared for attachment of cable reels for an external power supply.

The maintenance-free mechanical axle suspension with up to 460 mm vertical compensation ensures, by means of equaliser beams, that the axle load is always evenly distributed, even on quays with uneven terrain. Large wheels mean that the crane can travel over rails and other obstacles without any difficulty.

To transfer the forces exerted by the crane to the quay substructure safely and evenly, Gottwald Mobile Harbour Cranes are fitted with a proven, H-shaped stabiliser arrangement. If necessary, the crane stabilisers can be adapted to the quay specifications.



HMK 170 EG handling fertilizer at Sapec, Portugal: the field-tested H-shaped stabiliser arrangement enables the crane to operate even in areas with a minimum of working space

# All-Round Perfect Design

## The HMK 170 E in Detail

All drives and components of Gottwald Mobile Harbour Cranes are tuned to state-of-the-art technology and run with the precision of clockwork – for reliable operation and uncomplicated service.



Air-conditioned electrics compartment

### Hoists

The hoist has a modular U-shaped design. This arrangement provides proper cooling and good accessibility. The hoist comprises a high-response DC motor, spring-loaded disc brake, spur reduction gear unit and rope drum. The 4-rope grab design, HMK 170 EG, is equipped with a second hoist.

Two hoists for 4-rope HMK 170 EG



Superstructure with individual rooms, designed as modules



### Hydraulic Unit

The hydraulic unit, driven by an AC motor, provides the power for the luffing gear and auxiliary drives. Luffing is undertaken by means of a hydraulic cylinder under compressive load. The cylinder and valve block are easily accessible from the platform of the chassis, which facilitates servicing.

### Slewing Gear Drive Unit

The slewing gear likewise has a modular design and comprises a high-response DC motor, upright-mounted planetary reduction gear unit and spring-loaded disc brake.



Modular designed slewing gear drive unit



Hydraulic unit driven by an AC motor



### Diesel-Generator Set

The generator driven by the diesel engine provides sufficient power to carry out all crane functions simultaneously and independently of each other at maximum speed.

### Tower/Boom

The torsionally stiff plate girder structure ensures that the mechanical forces are transferred evenly from the boom to the tower. For safe, fast and comfortable access to cabs and components, steps, ladders and platforms are provided in the tower interior.

The triangular boom is designed as a robust tubular structure. A specially-designed rope arrangement between the tower and the boom allows for a horizontal load path. The cable reel is positioned on the boom head in such a way as to provide good cable guidance.



Tower cab



Additional cab on the chassis

### Cabs

All crane functions are controlled from the tower cab. Optimum cab height on the tower guarantees an excellent view – an ergonomic design provides superlative comfort.

The HMK 170 E can be equipped with an additional cab on the chassis for crane travel and stabiliser modes. As an option, this cab can be positioned on the superstructure.

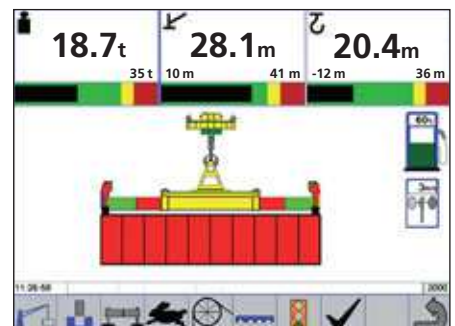
The layout of the superstructure means that crane operators can climb directly from the machinery room into the tower. It is not necessary for customers to fit stairways.

### Control System

The Gottwald Visumatic® control system has been developed based on decades of experience in manufacturing and consists of off-the-shelf components proven in port technology.

The system is based on state-of-the-art bus technology that permits a multitude of data to be transmitted simultaneously, securely and quickly. Visumatic® also features:

- display of all crane functions on the monitor
- menu-guided selection of different operating statuses
- statistical evaluation of handling rates, operating hours or current maintenance status, etc.



Gottwald Harbour Cranes can be supplied not only on a tyre-mounted chassis but also on a rail-mounted portal or barge. Seen here as an HSK 170 EG Portal Harbour Crane handling steel in the Port of Tuapse, Russia.



HMK 170 EG handling bulk material, such as scrap and agribulk, at the Port of Southampton, United Kingdom



Visumatic® is equipped with colour graphic symbols clearly represented on a screen that act as an intuitive operator guide

# Gottwald Mobile Harbour Cranes

The Right Solution for Every Application



HMK 170 E handling general cargo at Zuidnatie at the Port of Antwerp, Belgium

## Service

The service portfolio of Gottwald Port Technology also includes: a global service network including spare part depots near Gottwald regional service centres, spare parts, field service, service packages, customer-specific product training and a global 24/7 emergency hotline. Operators can reach the hotline on the following number: **+49 (0)211 7102 3333**

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## HMK 170 E Technical Data

Capacities	heavy lift	63 t
	standard lift	45 t
Working speeds	hoisting/lowering	78 m/min
	slewing	1.4 rpm
	luffing	45 m/min
	travelling	80 m/min
Hoisting height	above ground level	36 m
	below ground level	12 m
Dimensions	propping base	11.5 m x 11.0 m
	crane in travel mode (approx.)	15.2 m x 8.2 m
Weight (approx.)		240 t
Diesel engine		649 kW
Chassis	number of axles	4
	steerable	4
	driven	2

## HMK 170 E Capacities

Operating modes Radius [m]	Heavy lift		Standard lift	Motor grab
	on ropes [t] (75%)	on hook [t] (75%)	on hook [t] (66%)	on ropes [t] (50%)
10-21	65.3	63.0	45.0	32.0
22	61.2	58.9	45.0	32.0
24	54.5	52.2	45.0	32.0
26	49.1	46.8	42.3	31.6
28	44.5	42.2	37.7	28.5
30	40.5	38.2	33.9	25.6
32	37.1	34.8	30.7	23.1
34	34.0	31.7	27.9	21.0
36	31.2	28.9	25.5	19.2
38	28.9	26.6	23.4	17.5

## Mobile Harbour Cranes for Container Handling

Gottwald Port Technology's range of Mobile Harbour Cranes for container handling includes the HMK 170 E and HMK 260 E as well as the Generation 5 Models 4, 6, 7 and 8.

