

Generation 5



A combination of power and functionality  
**Model 6 Harbour Crane**



# Model 6 Harbour Cranes

High performance for higher handling rates

In maritime ports it is reliable, economical and environmentally compatible handling machines that are in demand. More specifically, terminal operators prefer versatile handling machines to single-purpose, custom-built ones.

## Gottwald Mobile Harbour Cranes

As electrically powered, universally applicable cargo-handling machines, Gottwald Mobile Harbour Cranes provide the ideal solution thanks to their broad range of uses while, at the same time, offering high handling performance with:

- containers
- bulk materials
- general cargo and
- heavy project loads.

As well as their key characteristics:

- mobility
  - versatility
  - economic efficiency and
  - environmental friendliness,
- these machines offer short delivery lead-times and low specific invest-

ment costs for the machine itself and the quay infrastructure.

## Wide range of Harbour Cranes

The current crane Generation 5, according to our philosophy "You Name it, We Crane it", is based on Gottwald's pioneering modular design principle which fully meets individual customer requirements for all the Harbour Cranes made by Gottwald:

- Mobile Harbour Cranes
- Portal and Pedestal Cranes
- Floating Cranes on Barges.

The Model 6 crane features high-level performance and top-of-the range functionality – an all-round cargo-handling machine offering universal capabilities and, for terminal operators, it is also an attractive alternative to custom-made equipment.

## All-rounder to meet increasing demands

Model 6 is a universal high-performance crane for the growing challenges and increasing volumes of special and multi-purpose terminals. Depending on the configuration, Model 6 is designed for a lifting capacity of 125 t at a radius of up to 20 m and 100 t at up to 24 m; it is also equipped for especially high hoisting speeds.

### Model 6 Harbour Cranes

Designed to be extremely robust, Model 6 Harbour Cranes are intended for high-performance applications and, as a consequence, very high handling rates, assured by lifting capacities of up to 125 t, working radii of up to 51 m and extremely high hoisting speeds of up to 120 m/min. Added to this are the usual high crane classifications, such as A7 for a 50-tonne grab curve or A8 for a 40-tonne grab curve.

### Ideal for handling containers and bulk materials

Owing to these outstanding features, this crane model is mainly designed to service container vessels up to the post-Panamax size and bulk carriers up to cape size class calling at universal and special terminals.

Their application range includes, in particular intensive, high-speed container handling in both single-lift and twinlift modes and professional, continuous bulk handling under extreme conditions. Model 6 is also suitable for terminals performing a significant number of heavy-load lifts.

### For high handling rates

Model 6 offers innovative features to provide safe, ergonomic, economical and environmentally compatible crane operation. This is demonstrated by these features, amongst others:

- individually steered axles, tight turning circles and crab steering to enable extremely accurate positioning
- automation of many repetitive motions
- load guidance system with linear load motion, load antisway, point-to-point handling mode and hoisting height limiting to assist the crane driver in achieving high handling rates
- possibility to connect to an external power supply and fit a hybrid drive.

### Suitable for the following:

Container vessel size		Standard	Panamax	Post-Panamax
	Capacity [TEUs]	1,000 – 2,500	3,000 – 4,500	6,000 – 9,600
	Number of rows	≤ 10	≤ 13	≤ 17
	Beam [m]	~ 24	~ 32	~ 43
				
Bulk carrier size		Handymax	Panamax	Capesize Bulker
	Capacity [DWT]	≤ 50,000	≤ 80,000	≤ 170,000
	Beam [m]	22 – 32	~ 32	38 – 65
				

### The types and versatile variants of Model 6 Harbour Cranes

Crane type	Variant	Max. lifting capacities [t]			Max. hoisting speeds [m/min]				Max. radii [m]
		100*	100	125	90	110	116	120	
G HMK (G HSK) (G HPK)	6507	50**		●			●		●
	6407		●		●			●	●
	6407 B	●				●			●

\* Heavy-load operation

\*\* A7 classification, 40-t grab curve in A8 classification

Please see the technical data sheet for complete data.

# Electric drive technology for Harbour Cranes

## Economical & environmentally compatible

Gottwald Harbour Cranes use electrical drive technology, the energy source most commonly found in ports, which means they are economical and ecologically compatible. Power is generated by an efficient, on-board diesel generator with low fuel consumption, minimum exhaust and noise emissions, which complies with the requirements of EU Directive 2000/14/EC.

### Use of external power supplies

The efficiency of Gottwald drive systems increases still further if the diesel generator is bypassed and the crane drives are powered directly with electricity from the harbour mains. Crane owners benefit both from the energy recovered from the crane's lowering and braking

motions and from the fact that exhaust gas emissions are zero and noise emissions in the terminal are also reduced.

### Innovative hybrid drives

If the local quay infrastructure does not allow the crane to be connected to the harbour mains, the new Gottwald hybrid drive, made up of:

- an on-board diesel generator and
- electrostatic short-term storage medium

significantly improves the efficiency of Gottwald Harbour Cranes. The energy recovered during the crane's lowering and braking actions is stored and then made available to the crane's power system for the next work cycle. Fuel savings of up to 23.2%\* have been achieved.

### Energy from storage media

The short-term storage medium uses electrostatic wear and friction free double-layer capacitors (ultracaps), which:

- store the energy as electricity so it does not have to be converted and have a high efficiency rating
- have a high power density and cycle rate
- are ideally suited to the tough conditions of professional crane operation.

### Dynamic brake resistors

When the on-board diesel generator is used, energy management is improved by the use of dynamic brake resistors, resulting in fuel savings of up to 15.2%\*.

\* Achieved under specific deployment conditions and based on experience gained from operating a Gottwald Model 6 crane over a period of more than one year.

## Gottwald's Green Range – future-orientated, innovative, sustainable

The energy efficiency of electrical drive technology is unsurpassed. Apart from state-of-the-art diesel generators it is, in particular, the use of external power and hybrid drives that offers the highest potential for sustainable environmental protection and reduced overheads.



Connecting cranes directly to the terminal's low or medium-voltage power supply provides these benefits:

- improved efficiency
- reductions in overheads such as power and maintenance
- zero exhaust emissions in the terminal from these machines
- minimised noise pollution.

Where there is no external power supply on the quay, Gottwald's hybrid drive is the answer:

- improved efficiency
- reduction in fuel consumption in the double-digit percentage range
- reduced exhaust emissions
- lower noise emissions as the diesel engine has quieter running characteristics.

With its products and drive concepts, Gottwald is setting standards in terms of environmental sustainability.





As a member of Gottwald's Generation 5 Harbour Crane family, Model 6 is also suitable for connection to an external power supply and can be supplied with a hybrid drive

# With the benefits typical of Generation 5

## Model 6 Harbour Cranes

As with all Gottwald Generation 5 Harbour Cranes, Model 6 also has numerous practical design features.

Permanently play-free flange connection enhances rigidity and accurate crane motions.



Optimum power-cable feed, minimum cable loading, and long cable service life due to the torque-controlled cable reel.

Lamps with high-intensity allow the crane operator to illuminate the entire work area.

Tight turning circle and crab steering ensure excellent manoeuvrability.

Maintenance-free equaliser beams with vertical compensation of up to 500 mm ensure that the axle load is always evenly distributed, even on quays with uneven terrain.

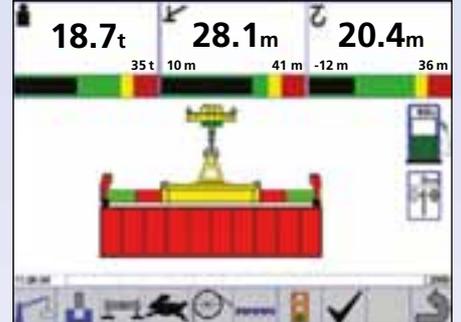
Chassis driver's cab as standard.





Ladders for safe ascent to the tower head. Large platforms for easy access to all rope pulleys for maintenance work.

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



Cab ergonomically designed affording the best possible comfort. High crane availability through enhanced diagnostic possibilities via the Visumatic® crane management system.



Excellent view of the job site thanks to the high tower cab position. Even better view of the vessel thanks to the forward-mounted cab (optional).



Proven H-type stabilisers – automatic propping system – stabiliser pads chosen for the particular conditions of the quay.

Interlocking stabiliser beams for reduced passage width.



# A closer look at our innovative technology

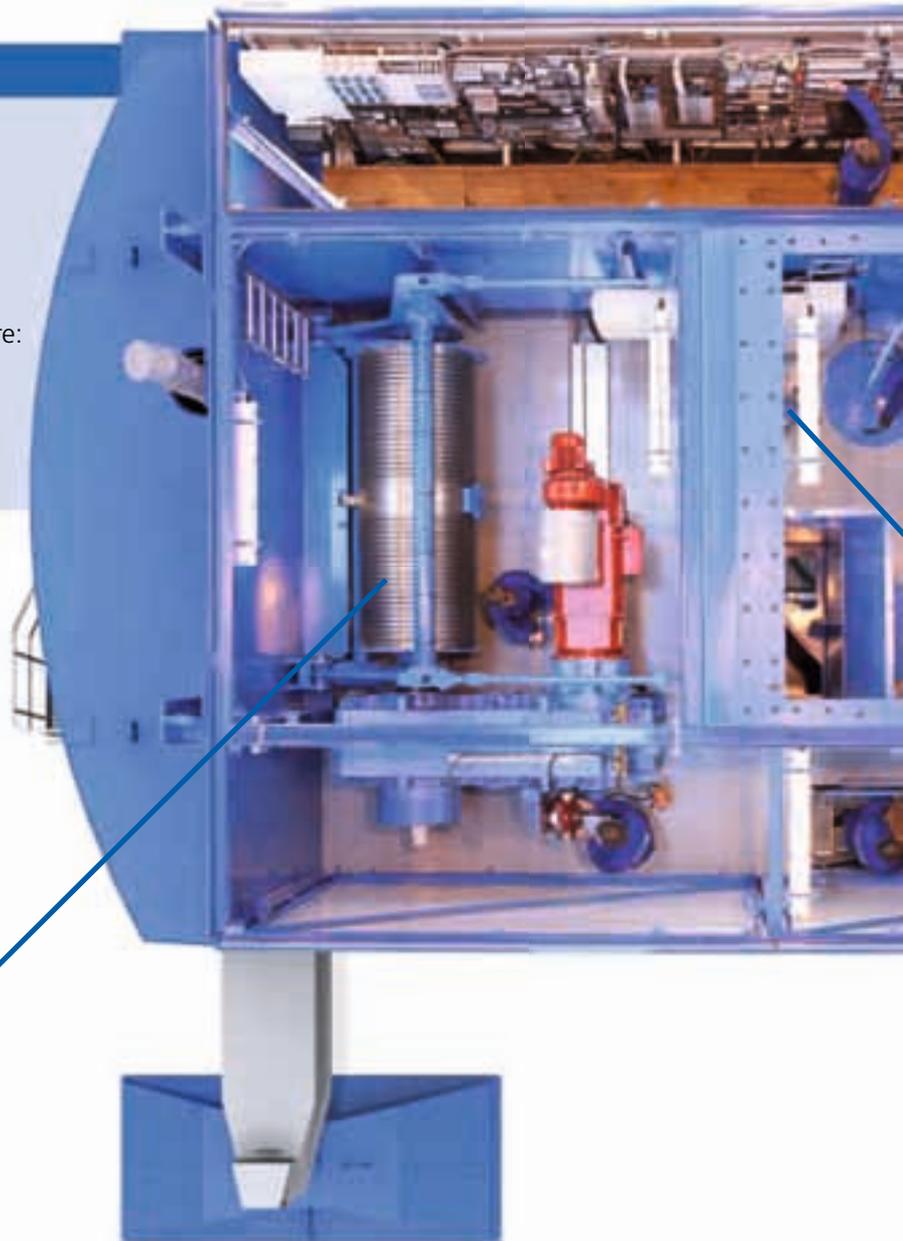
## Model 6 Harbour Cranes

### Top floor

- 2.5 m clear headroom
- Separate, large rooms for:
  - up to 2 hoists in various configurations
  - hydraulic unit including tank
  - electrical equipment
- Spacious stairway to the tower
- Hoist located at the rear of the superstructure:
  - to provide the best possible rope guidance beyond the tower
  - to reduce the overall crane weight

### Hoists

- Modular design
- Arranged in a U-shape for easy accessibility and heat removal
- Available in the configurations 1 x 2 or 2 x 2 as required for the crane variant and application
- Single-layer rope coiling for minimal rope wear
- DC drive for smooth acceleration and deceleration of the hoisting motion



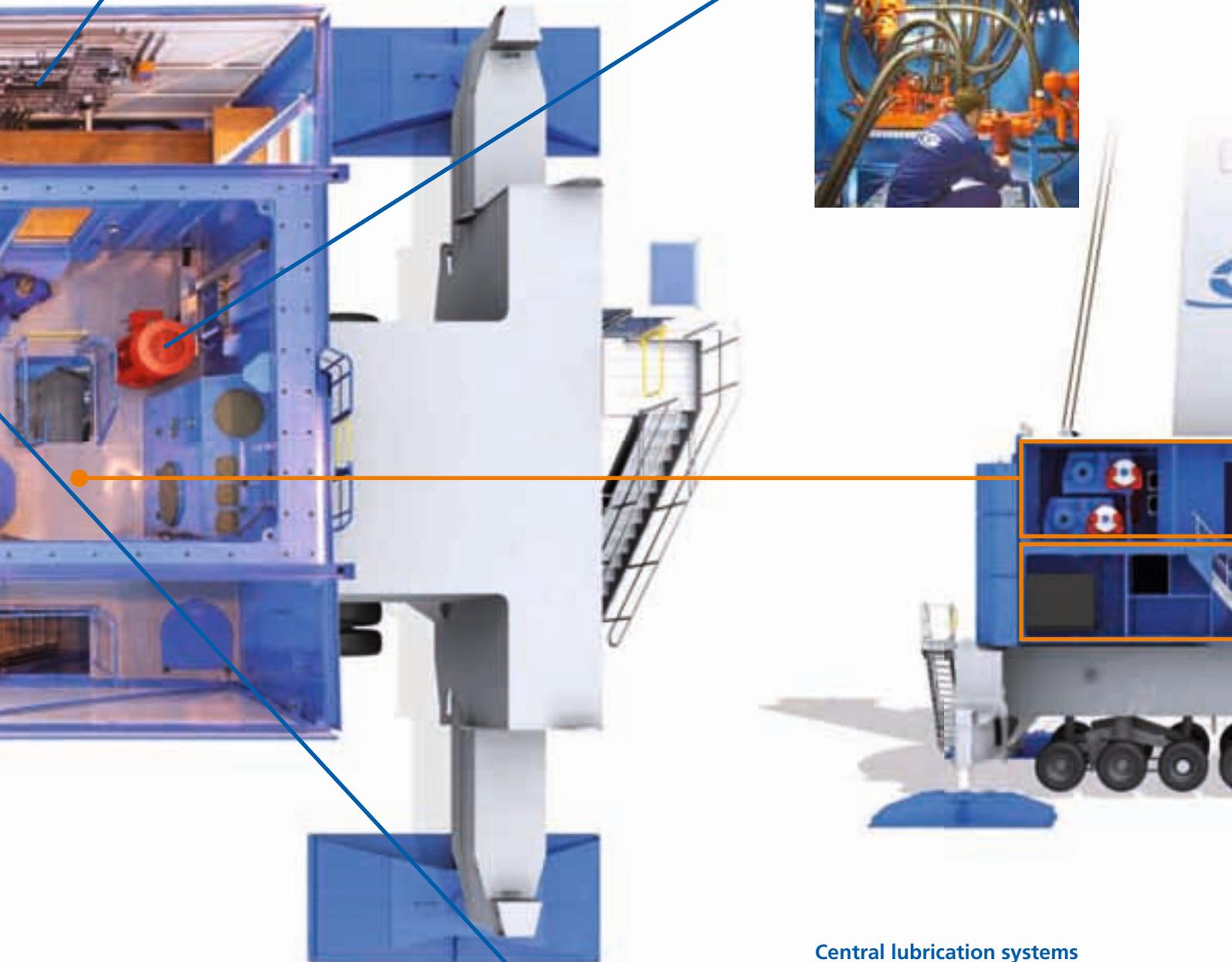


#### Electrics room

- Electrical equipment and control system
- Rectifier units for 3phase to DC power conversion
- Clearly divided into function groups
- Diagnostics panel to facilitate troubleshooting
- Heated and air-conditioned

#### Hydraulics unit

- 3phase driven axial piston pump
- Supplies luffing cylinder, travel gear, stabilisers, steering and brake systems with hydraulic oil.



#### Central lubrication systems

- Ensures regular and proper lubrication of slew ring, boom root and luffing cylinder bearings
- Optionally extendable to include chassis and rope pulleys
- Pinion lubrication using special-purpose, high-performance grease via separate central lubrication system (standard on 4-rope grab cranes, optional on 2-rope cranes)

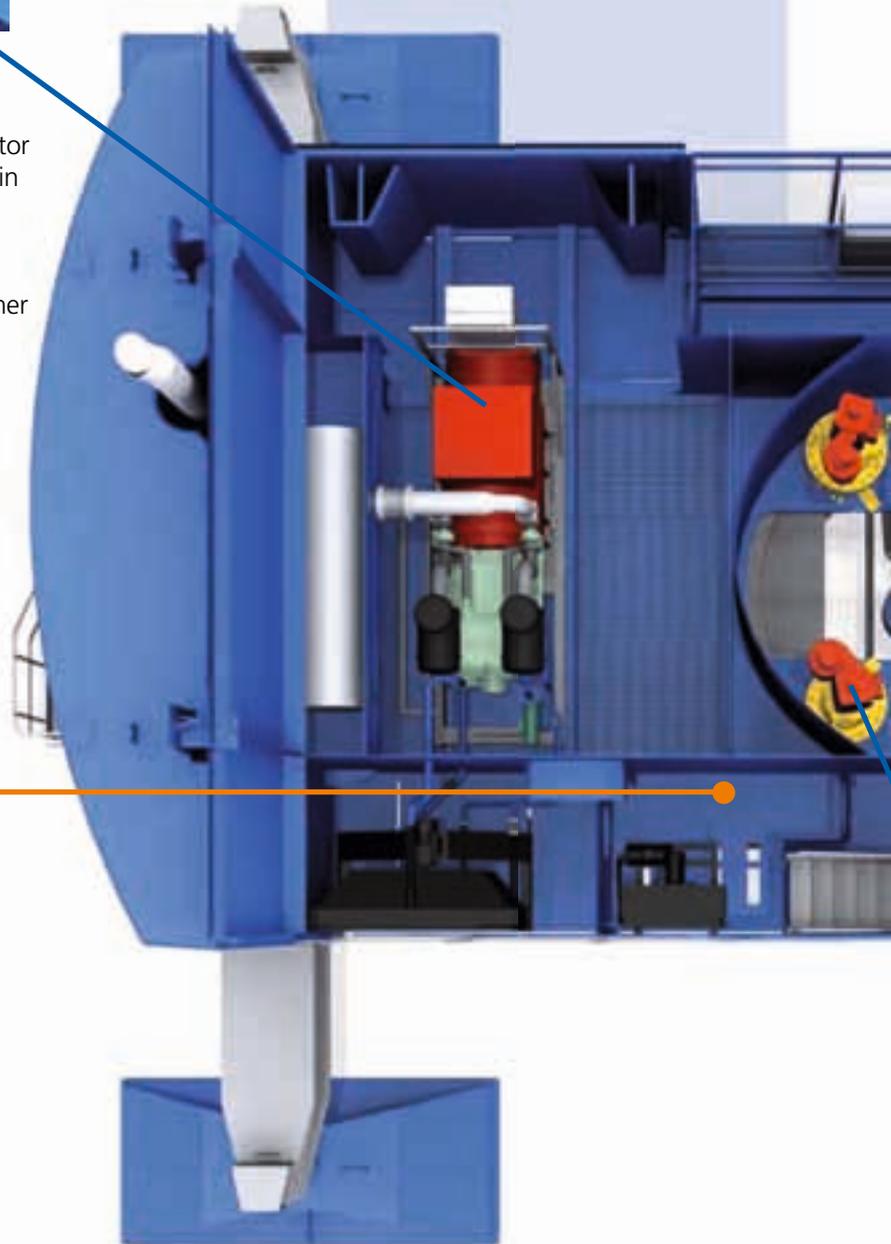


### Diesel generator

- Mounted on slide
- Day tank located next to the generator set; automatic refilling from the main fuel tank in the chassis
- Sufficient power to permit all crane functions to be performed simultaneously and independently of each other
- Drive power based on crane variant and application

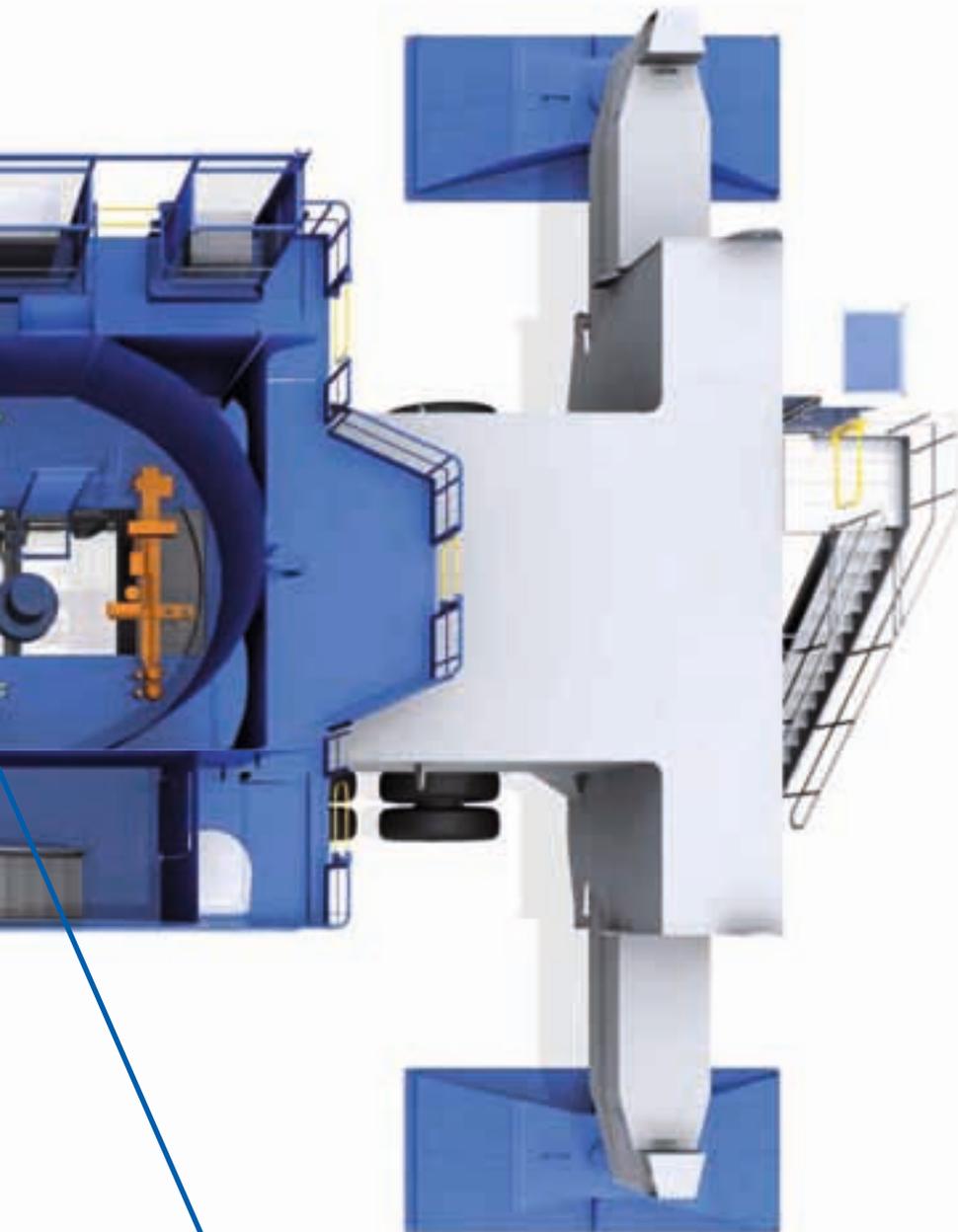
### Lower floor

- 2.5 m clear headroom
- Separate, large rooms for:
  - diesel-generator set
  - 2 slewing gear units
- Spacious stairway to the upper floor
- Diesel-generator set located at the rear of the superstructure to reduce overall crane weight.



### Stairways

- Easy access up the stairway to the chassis
- All stairways on the crane with 50° inclination



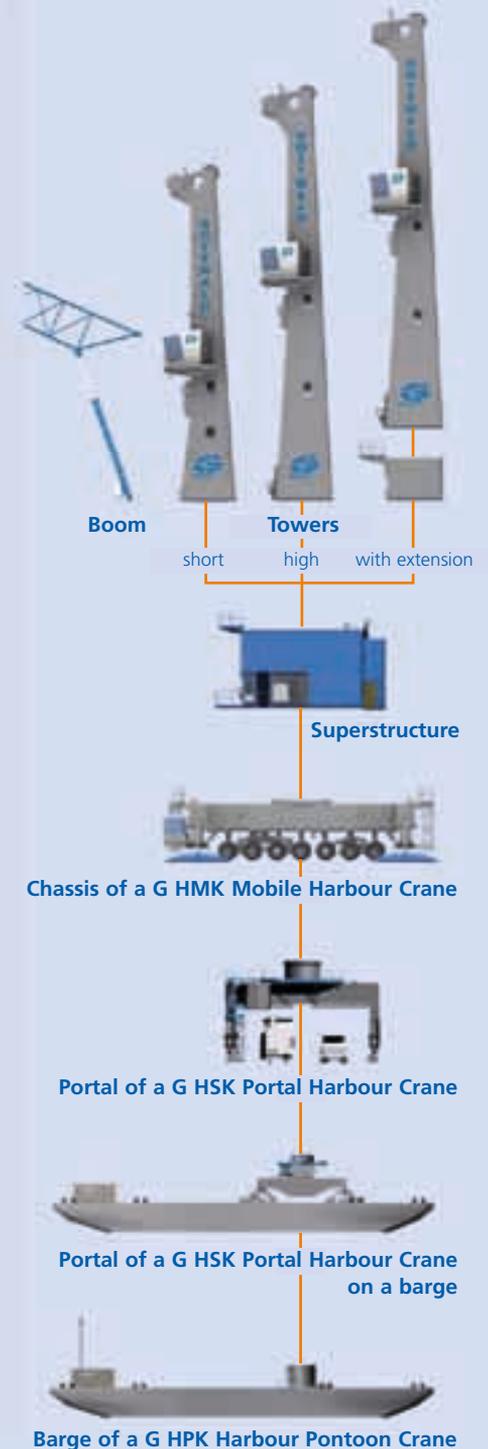
#### Slewing gear units

- Modular design
- The number of units is as required for the crane variant and application
- DC drives for smooth acceleration and deceleration of the slewing motion

#### On tyres, portals, fixed pedestals or barges

The Model 6 Harbour Crane is a universally applicable cargo-handling machine which is based on a ground-breaking modular design principle.

It is available on a rubber-tyred chassis, a rail-mounted portal or on a fixed pedestal. As a Floating Crane it is mounted either on a fixed pedestal or a travelling portal which allows it to traverse the length of the barge.



# Perfectly conceived

By the technological leader in Mobile Harbour Cranes

Investments in cargo-handling equipment are dependent on the quay infrastructure, which includes the permissible ground loadings, rail gauges, clearance heights and any existing power supply installations. Further key factors in the decision to purchase professional handling machines are the application profile, lifting capacity, annual operating hours and delivery lead-time.

## Perfectly integrated

To enable Harbour Cranes to be integrated into all manner of existing quay infrastructures, Gottwald can supply its machines with modified stabiliser pads for quays with reduced load-bearing capabilities and cranes with individually tailored portals and barges for use on narrow quays, special-purpose quays and for handling cargo where there is no suitable quay.

## Turnkey solutions

Where a turnkey handling solution is required, Gottwald's range of services includes:

- planning and consulting including simulation for new terminals and terminal expansions
- peripheral systems such as hoppers, conveyor belts and container handling equipment in the terminal
- interfaces between peripheral systems and terminal operating systems
- complete Floating Cranes including maritime classification.

## Short delivery times

Thanks to consistent application of its Advance Order Programme for Harbour Cranes, which allows ample room for the inclusion of customer-specific wishes, Gottwald can adhere to short delivery lead-times. Together with the comparatively low specific investment costs for the crane and

infrastructure, the rapid delivery is a considerable advantage over custom-built single-purpose machinery.

## Long service life

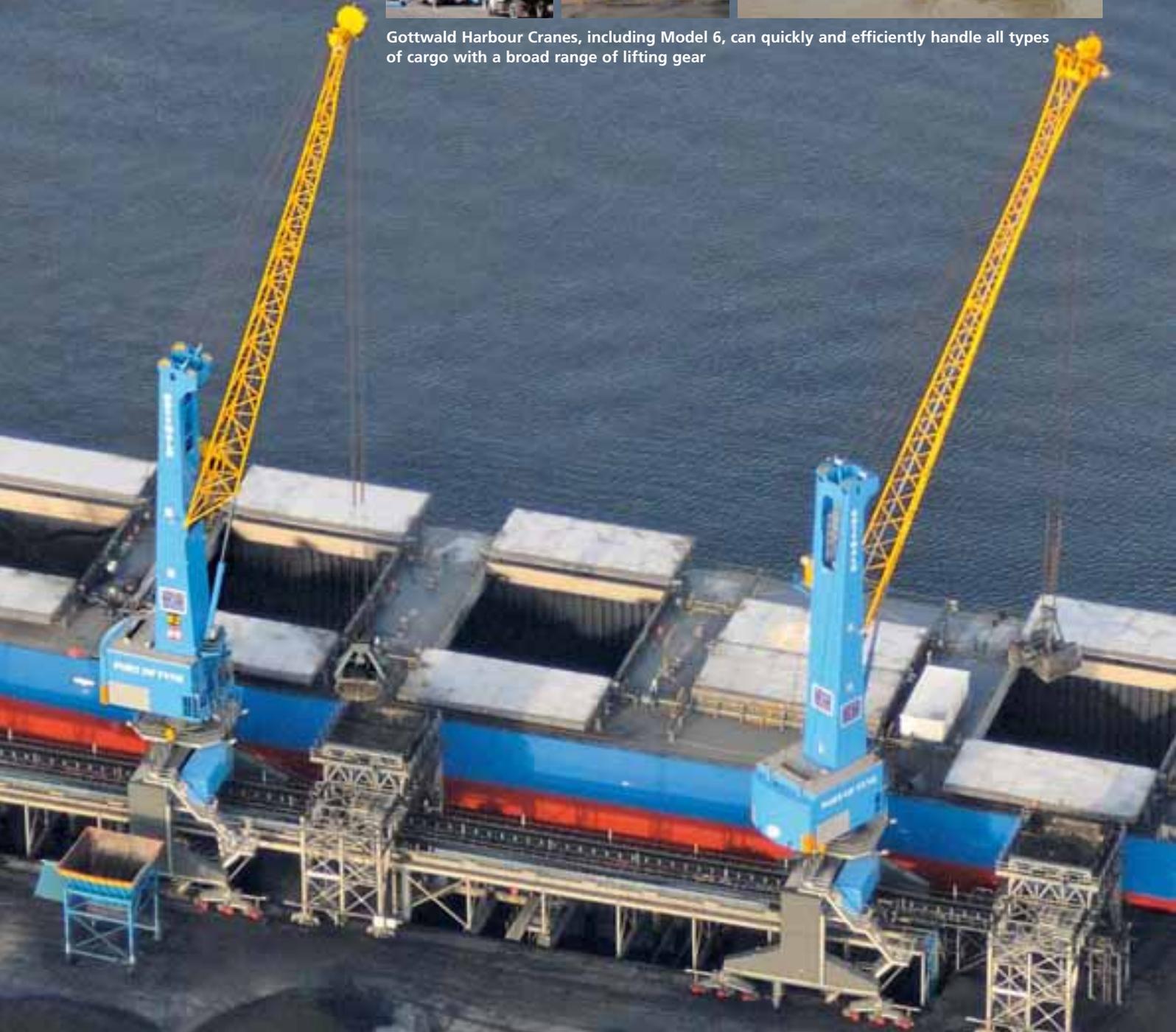
The anticipated number of work cycles and, as a result, the expected service life of Harbour Cranes depend, amongst other things, on the intensity of crane operation, the type of loading and the way the crane is designed to deal with loads.

To ensure that, right from the outset, an investment is made in the right crane with the required classification, Gottwald configures the crane jointly with the terminal operator to match the intended application.





Gottwald Harbour Cranes, including Model 6, can quickly and efficiently handle all types of cargo with a broad range of lifting gear



# Reliable service

Around the world, around the clock, all around the product

As a subsidiary of Demag Cranes AG, Gottwald can draw on worldwide service to secure the highest possible availability of your cargo handling cranes and the value of your investment. Integrated in reliable service networks, Gottwald can provide professional troubleshooting and has implemented an efficient, two-stage support structure:

## First level support

Gottwald has direct access to a global network of service centres and representatives within the Demag Cranes Group, which enables us to orientate ourselves towards you, the customer, and your needs. When you purchase a Gottwald product, we name a contact responsible in your region.

## Second level support

Our representatives are supported globally by the Gottwald Service Competence Centre (SCC) in Düsseldorf, Germany. The SCC provides help, especially with complex questions.

Modern eBusiness solutions allow fault diagnoses in real-time communication. In specific emergencies, the SCC can be reached on the global 24/7 hotline: **+49 (0) 211 7102-3333**

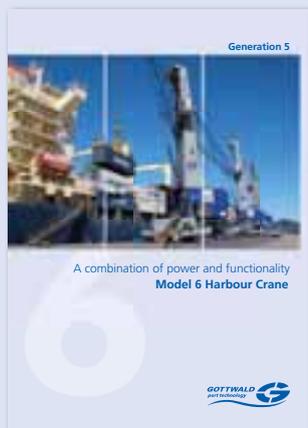
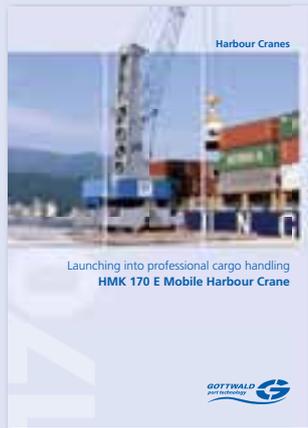


**Gottwald provides customer-orientated service for all its products for their entire service lifetimes.**

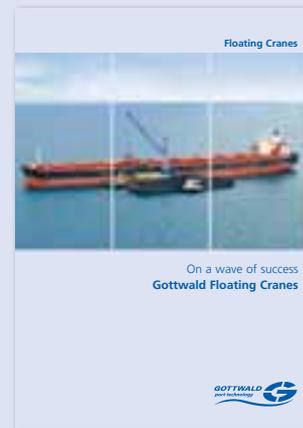




You can find the regularly updated contact details for the continuously expanding global service network in the "About Us" section on the Gottwald website



**Gottwald Mobile Harbour Cranes – detailed product brochure for each model**



**Generic brochures for Mobile Harbour Cranes, Portal Harbour Cranes and Floating Cranes**

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