

Generation 5



High-performance, functional, compact
Model 4 Harbour Crane

NOW PART OF
TEREX PORT SOLUTIONS
TEREX | GOTTWALD

GOTTWALD
port technology 

Model 4 Harbour Cranes

The high-performance solution for large volumes

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 investment 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.

Suitable for the following:

Container vessel size		Feeder	Standard	Panamax
	Capacity [TEUs]	300 – 1,200	1,000 – 2,500	3,000 – 4,500
	Number of rows	≤ 8	≤ 10	≤ 13
	Beam [m]	~ 18	~ 24	~ 32
				
Bulk carrier size		Handysize	Handymax	Panamax
	Capacity [DWT]	≤ 30,000	≤ 50,000	≤ 80,000
	Beam [m]	18 – 28	22 – 32	~ 32
				

The types and versatile variants of Model 4 Harbour Cranes

Crane type	Variant	Max. lifting capacities [t]			Max. hoisting speeds [m/min]				Max. radii [m]
		80* 40**	100* 40**	100	70	85	90	100	
G HMK (G HSK) (G HPK)	4406			●	●		●		●
	4406 B		●			●			●
	4306 B	●						●	●

* Heavy-load operation

** A7 classification, 34-t grab curve in A8 classification

Please see the technical data sheet for complete data



Model 4 is characterised by its high-level performance, top-of-the-line functionality and compact construction – like all Gottwald Harbour Cranes, it ensures the lowest operating costs and, at the same time, the highest degree of reliability



Model 4 Harbour Cranes

Designed to be a high-performance, functional and compact machine, the Model 4 Harbour Crane is a member of Gottwald's medium-sized crane family. The crane has a maximum lifting capacity of 100 t, installed capacity of 895 kW, a working radius of up to 46 m and the usual high crane classifications such as A7 for a 40-tonne grab curve or A8 for a 34-tonne grab curve.

Ideal for universal and special terminals

Thanks to this technical design concept, the crane meets the requirements of universal and special terminals and can service ships up to the Panamax class. At the same time, Model 4 is attractive for terminals that, on account of their size and development potential, are already anticipating larger cargo-handling volumes and increasing annual operating hours for discharging equipment.

Handling cargoes efficiently

Model 4 represents a perfect alliance of economy, safety, ergonomics and environmental compatibility. The intuitive, easy operation complemented by high working speeds permits the crane operator to achieve high handling rates.

The innovative features that ensure efficient crane operation include these:

- 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 and
- possibility to connect to an external power supply and fit a hybrid drive.

Exemplary approach to innovative technology in the 100 t segment

With its broad range of 100-tonne Harbour Cranes, Gottwald meets the requirements of all types of vessels, terminals and cargo handling. As a high-performance, functional and compact member of Gottwald's Generation 5 medium-sized crane family, Model 4 provides a lifting capacity of 100 t at a radius of up to 22 m.

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:

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

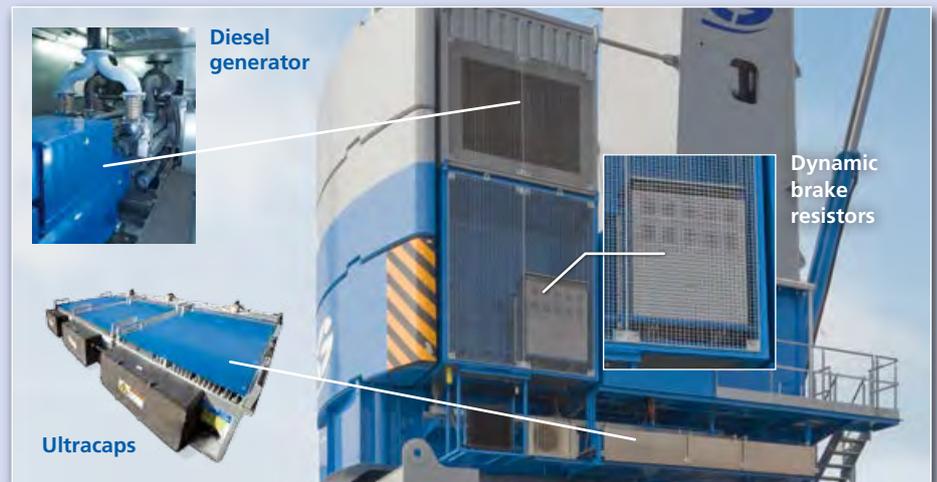
Dynamic brake resistors

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 Generation 5 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.

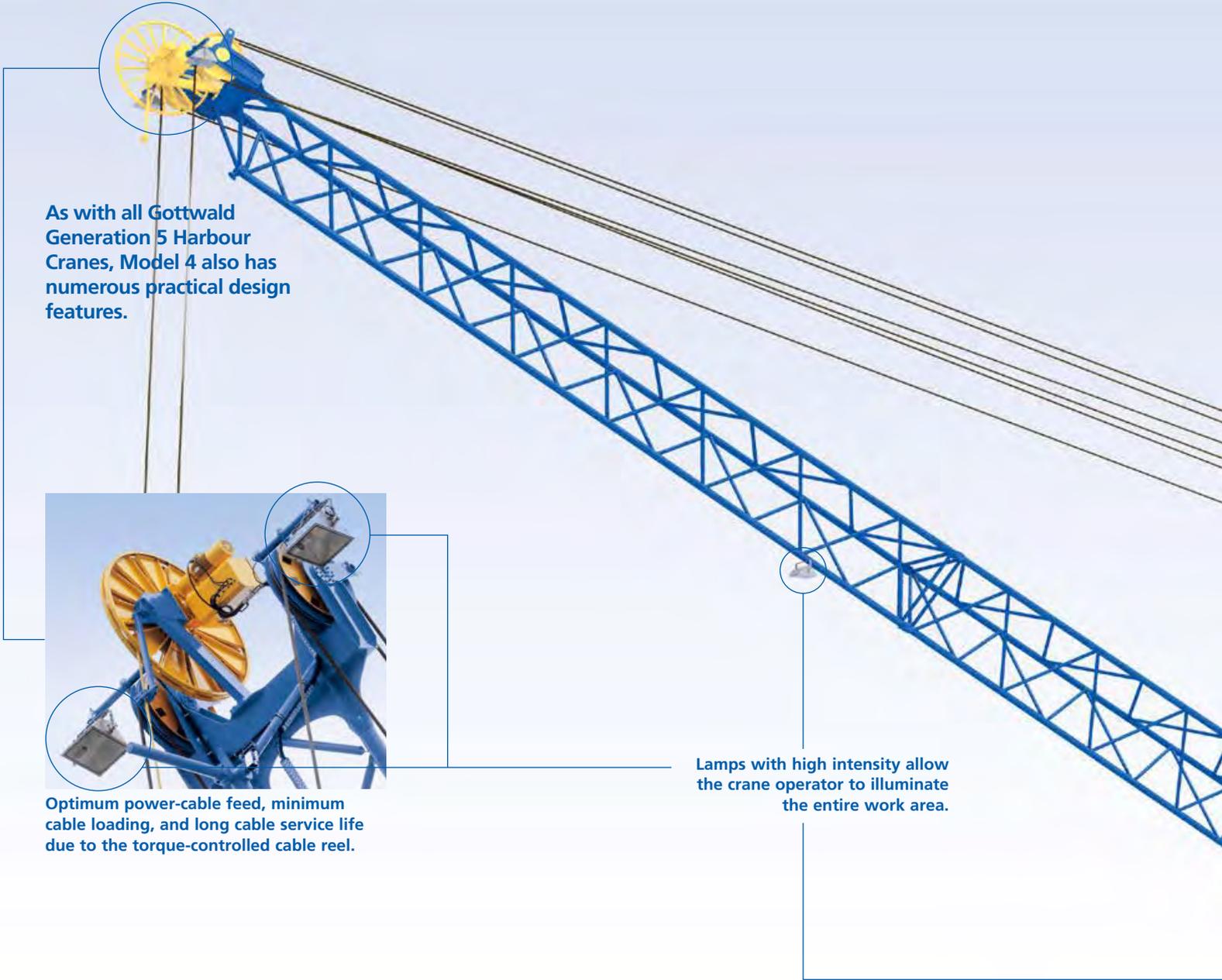




As a member of Gottwald's Generation 5 Harbour Crane family, Model 4 is also suitable for connection to an external power supply and can be supplied with a hybrid drive

With the benefits typical of Generation 5

Model 4 Harbour Cranes



As with all Gottwald Generation 5 Harbour Cranes, Model 4 also has numerous practical design features.



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 ± 250 mm ensure that the axle load is always evenly distributed, even on quays with uneven terrain.

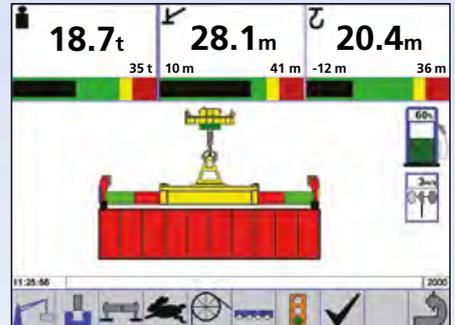
Optional cab on the chassis.





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.



A closer look at our innovative technology

Model 4 Harbour Cranes

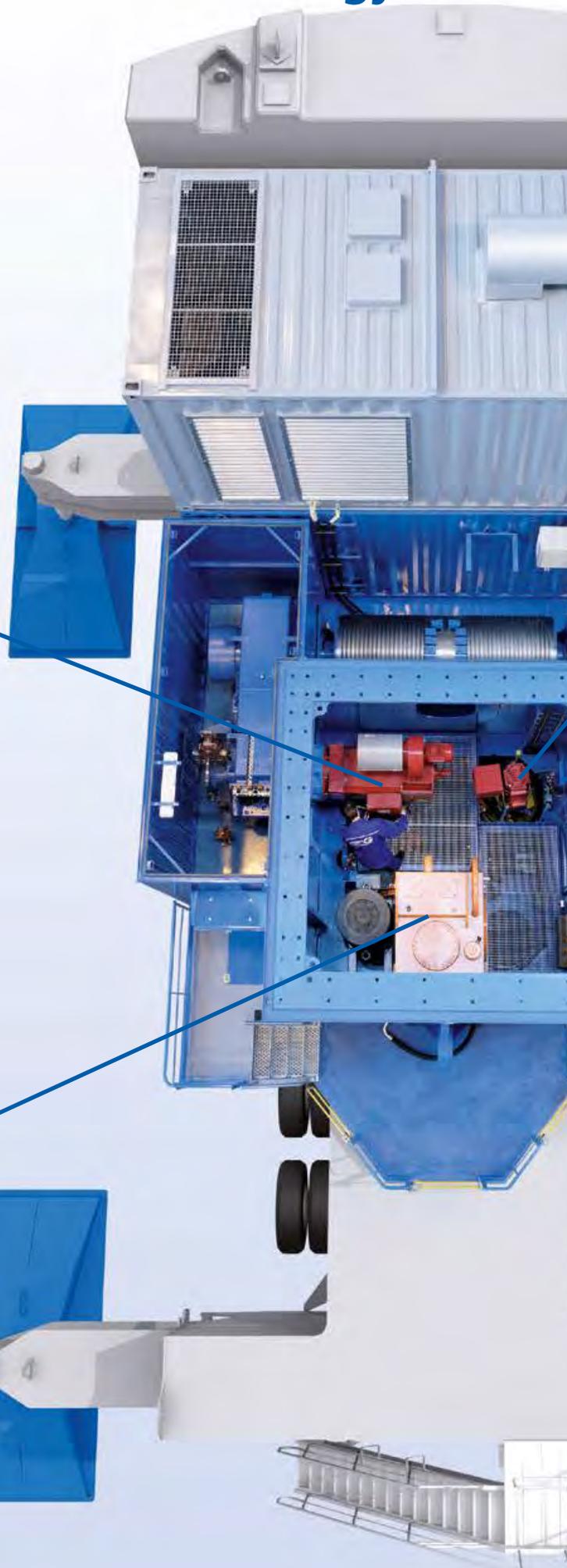


Hoists

- 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

Hydraulics unit

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





Slewing gear units

- Identical slewing gear units designed as modules
- The number of units as required for the crane variant and application
- DC drive for smooth acceleration and deceleration of the slewing motion



Central lubrication systems

- Ensure 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.





Diesel generator

- In weatherproof, soundproofed container
- Mounted on slide
- Drive power based on crane variants and application
- Sufficient power to permit all crane functions to be performed simultaneously and independently of each other

Electrics room

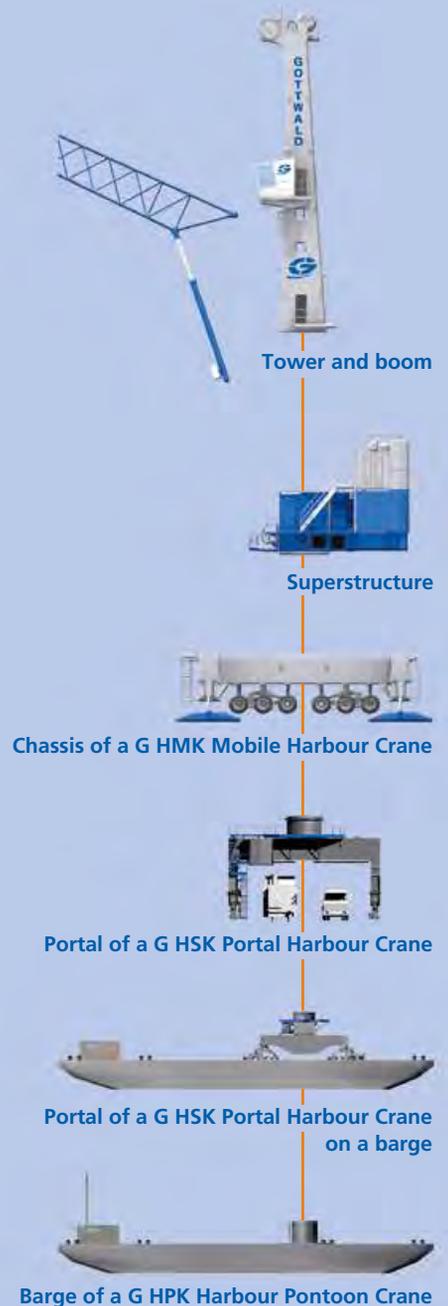
- Electrical equipment and control system in weatherproof, air-conditioned container
- Rectifier units for 3phase to DC power conversion
- Clearly divided into function groups
- Diagnostics panel to facilitate troubleshooting



On tyres, portals, fixed pedestals or barges

The Model 4 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-tired 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 world market 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, 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 4, 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**

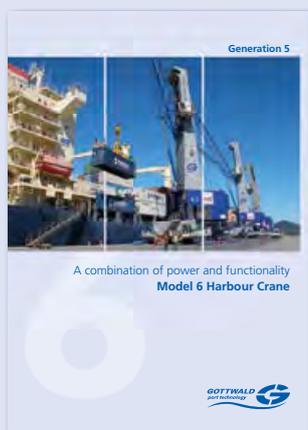
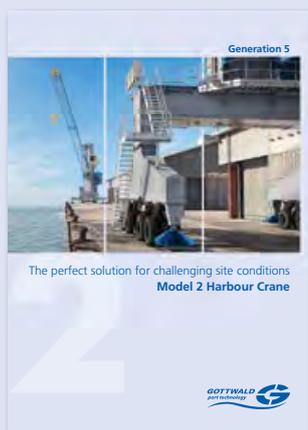


Gottwald provides customer orientated service for all its products for their entire service lifetimes.

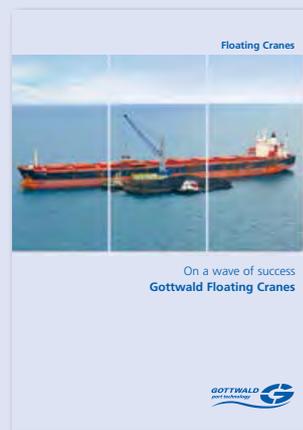
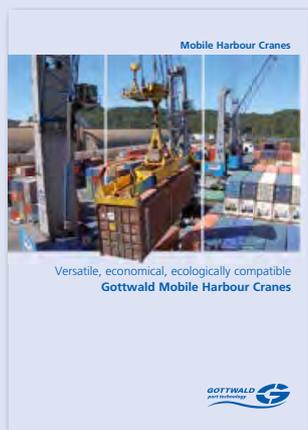




You can find the regularly updated contact details for the continuously expanding global service network in the "About Us" section on the Gottwald website



Gottwald Mobile Harbour Cranes – detailed product brochure for each model



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

Effective date: October, 2013. Product specifications and prices are subject to change without notice or obligation. The photographs and/or drawings in this document are for illustrative purposes only. Refer to the appropriate Operator's Manual for instructions on the proper use of this equipment. Failure to follow the appropriate Operator's Manual when using our equipment or otherwise failure to act responsibly may result in serious injury or death. The only warranty applicable to our equipment is the standard written warranty applicable to the particular product and sale and Terex Port Solutions makes no other warranty, express or implied. Products and services listed may be trademarks, service marks or trade-names of Terex Corporation and/or its subsidiaries in the USA and other countries. All rights are reserved. Terex and Gottwald are trademarks of Terex Corporation or its subsidiaries in the USA and many other countries. All other trademarks are property of their respective owners.
 © 2013 Terex Corporation.

Gottwald Port Technology GmbH · PO Box 18 03 43, 40570 Düsseldorf, Germany
 Phone: +49 (0) 211 7102-0
 Fax: +49 (0) 211 7102-3651
 tps.info@terex.com www.terexportolutions.com