



Take Control with an Intelligent System:
The Gottwald Visumatic®

Gottwald Harbour Cranes

At Home throughout the World – Technology Made in Düsseldorf

In numerous ports throughout the world, terminal operators and stevedoring companies rely on their Gottwald Harbour Cranes to get the job done. The different models and their variations, fitted with sophisticated technical features, have proven many times over that Gottwald Harbour Cranes guarantee the most cost-efficient cargo handling possible. Almost 1,000 Gottwald Mobile Harbour, Portal Harbour and Harbour Pontoon Cranes are in use daily under high-performance conditions around the world.

Control and Optimise Production: Thanks to Visumatic®

Technology made by Gottwald, with its well-established track record, is acknowledged by experts to be a preferred choice and a guarantee for exceptional performance. Both the crane's engineering and its control system have to be reliable and safe, and this is where the Gottwald Visumatic® steps in. Visumatic® is the visualisation and control system which optimises crane performance and enables Harbour Cranes to develop their full handling potential.

The underlying idea of the Visumatic® is to arrange all the functions required for operation, maintenance and production statistics management in a simple, accessible form.

To this end, the Visumatic® was developed based on the data gathered on the experience and expectations of crane operators around the world.

The Gottwald Visumatic® features:

- a graphical user interface for crane operation
- a visualisation system for all key crane functions
- a facility for recording and evaluating handling rates
- a maintenance system which displays the count-down in operating hours to the next maintenance interval
- a diagnostics system with detailed diagnostics messages.

Further Modules of the Visumatic® include:

- a radio remote control for all crane functions
- teleservice
- a slewing angle limiting function
- a pre-settable lifting height function

Special Options for Bulk Handling:

- load-sensing mode
- full use of the truck loading capacity when the crane loads trucks directly
- point-to-point handling mode
- hopper control from within the tower cab.



The name Visumatic® is a blend of VISUalisation and autoMATIC and is a worldwide registered brand and logo of Gottwald Port Technology.



The Control System: The Intelligent Solution for Crane Operation

To ensure that the crane operates reliably, only highest-grade components are used in the electronic circuitry. This is why the crane control system is based on Siemens S7 technology. The decentralised peripherals are linked to the crane control system by means of data buses.

These decentralised peripherals include, for example, frequency and power converters for the drives and signal inputs and outputs. The crane control system and the Industrial PC (IPC) for visualisation are linked by means of a network.

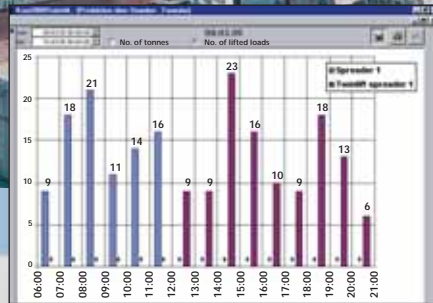


The Visualisation System: More than just a Pretty Interface

On start-up, the multifunctional, graphical user interface for crane operation guides the crane operator through the required parameter settings step-by-step. The colour screen in the tower cab offers all the required setting options that are relevant or required at that moment.

The visualisation system is installed on an Industrial PC which processes the data from the crane control system and incorporates a database to provide statistical evaluations including handling rate statistics.



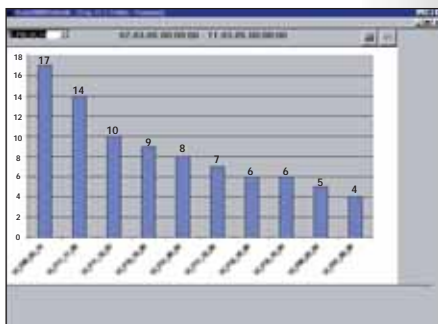


Graphical display of the handling rates achieved with different types of lifting gear over the course of the day



Recording and Evaluating Handling Rates

The Visumatic® is not only an indispensable tool for the crane operator, it also provides the crane owner with access to production data at any time. By evaluating these statistics on the basis of a given period or specific lifting gear, it is possible to schedule crane jobs more efficiently, increase the economical use of the crane and provide an enhanced return on investment.



Display of reoccurring diagnostic messages for performing corrective maintenance

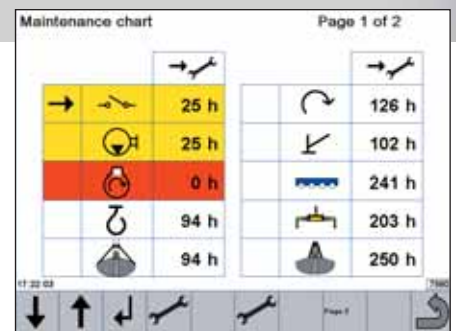
The Diagnostic System

The diagnostic system evaluates all the data recorded and generates detailed diagnostic messages. Analysing these messages facilitates scheduling of corrective maintenance on the crane to maximise long-term availability and reliability.

In this way, the extent and duration of corrective work can be incorporated in the maintenance schedule, which prevents unscheduled stoppages and expensive downtimes.

The Maintenance System

The Visumatic® compares the pre-defined maintenance intervals with the actual number of operating hours and displays the countdown in hours until the next maintenance interval.



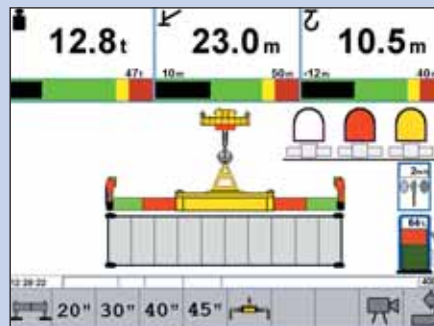
Upcoming maintenance intervals are shown in yellow, overdue maintenance in red

Everything in View

The graphical user interface for crane operation has been designed with several aspects in mind. As a result, many settings can be made intuitively because of the clear visual symbols. In addition, the system is logically structured, simple to operate and not cluttered up with rarely-used functions.

All Key Data Visible at a Glance:

- weight
- radius
- hoisting height
- crane or travel mode
- hook, grab or spreader mode
- wind speed
- fuel level indicator



Recording the bulk handled in terms of lifts and tonnage per ship hold



Increased Efficiency in Bulk Handling

The load-sensing mode registers and records the number of lifts required to remove a quantity of bulk goods from the hold.

In this way, the best procedure and sequence for unloading the ship holds can be determined. The Visumatic® not only determines the bulk tonnage in the individual holds, but also provides data on the total quantity of bulk handled.

When the crane loads bulk onto trucks directly, precise readings on bulk tonnage make it possible to make full use of the truck carrying capacity while, at the same time, preventing overloading.

When filling a hopper, Gottwald Mobile Harbour Cranes can use the point-to-point handling mode to reduce cycle times significantly.



Once the hopper location has been entered in the system, the Visumatic® drives the slewing gear and luffing gear automatically to position the grab over the hopper. The crane operator then only has to lower the grab and open it. The Visumatic® is also pre-programmed for direct hopper control via the Visumatic® screen in the crane tower cab.

Everything under Control

Thanks to the Visumatic®, many of the functions that were previously assigned to physical controls in the control panels are now available as keys below the screen. Screen displays are available as standard in nineteen languages. This ensures that crane operators quickly learn how to get the most out of the crane without requiring extensive training sessions.



All the benefits of Visumatic® are available in 19 languages on the graphical user interface

Slewing Angle Limiting Function

Where a crane is operating in a confined space, it is possible to restrict its slewing angle to prevent collision with adjacent buildings and terminal equipment and even to stop it straying into the working area of other cranes.



Pre-settable Lifting Height Function

The crane operator stores the exact lowering height of the container as he sets it down.

Thereafter, as each container is set down, the hoist will be automatically braked in good time to ensure that containers are deposited carefully without damaging the contents.



Always on Hand: The Radio Remote Control

A key component of the radio remote control system is the durable, weather-proof, ergonomically designed control unit which allows all the crane functions to be operated from ground level. The LCDs in the control unit use the same symbols as those in the tower cab, ensuring that crane operation can continue without the operator having to readjust to different symbols.

Using the radio remote control unit, the crane operator can move along beside the crane as he travels and positions it.

Maximum Availability: Gottwald Teleservice

Teleservice ensures that the causes of malfunctions or even a crane breakdown are detected and remedied as quickly as possible.

The Teleservice system transmits data from the Visumatic® to a PC in the crane owner's site office by radio. On the PC, all the crane operating parameters are monitored and can be adjusted to remedy the malfunctions detected. If necessary, other actions can be initiated.

This simplification is also a great advantage when changing lifting gear. Spreaders and grabs can be changed quickly and easily. During maintenance and repair work, using the radio remote control system also helps to prevent miscommunication between the crane operator and the service staff.

If it is not possible to diagnose the exact cause on-site, a Gottwald specialist at the Gottwald Service Centre can, by means of an online connection, access all the parameters and modify them to remedy the malfunctions or can take other corrective action as required.

The Radio Remote Control at a Glance:

- remote control for all crane functions
- durable, weather-proof, ergonomically designed control unit
- LCDs use the same symbols as in the tower cab
- easy crane travel and positioning from ground position
- quick lifting gear change
- no risk of miscommunication between crane operator and ground staff



The Gottwald Visumatic® at a Glance



Gottwald's Visumatic® is based on state-of-the-art control technology and guarantees a high level of crane availability while, at the same time, cutting costs significantly.

The Control System:

- conforms to international standards
- has a modular structure
- uses bus technology

The logo for Visumatic, featuring the word "Visumatic" in a stylized, italicized font. The "V" is large and blue, with the rest of the letters in black. The text is enclosed in a blue rectangular border.

Benefits for Crane Owners and Operators:

- easy operation via the graphical user interface and intuitive symbols
- clear visualisation of all crane functions
- economical operation thanks to the recording and evaluation of handling rates and other production data
- optional radio remote control for all crane functions
- high degree of crane availability due to integrated maintenance system and optional Teleservice
- special options for bulk handling

Gottwald Port Technology GmbH • Postfach 18 03 43 • 40570 Düsseldorf, Germany
Phone: +49 211 7102-0 • Fax: +49 211 7120-3651 • info@gottwald.com • www.gottwald.com

The logo for Gottwald Port Technology. It features the words "GOTTWALD" in a bold, blue, sans-serif font above the words "port technology" in a smaller, blue, sans-serif font. To the right of the text is a stylized blue logo consisting of a circle with a white 'G' shape inside, and a blue wave-like line below it.