

Opening up new opportunities for terminal automation

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There is no doubt that automation is playing an increasingly important role for container terminals. That's why Gottwald Port Technology (Gottwald), known as a pioneer in the field of automated port technology, has recently enhanced its line of automated products. The newly developed Automated Stacking Crane (ASC), employing the stack management software (ASC-MS) developed in-house, is, from several points of view, both a novel and a resilient automated container stacking crane. With the ASC the company is following up its success story with Automated Guided Vehicles (AGV) seamlessly and is now said to be the only supplier to actually be able to supply an automated system from A to Z with all the required hardware and software components.

Designed to work hand-in-hand on quayside and landside with different kinds of transport vehicles such as AGVs, straddle carriers, road and terminal trucks, the new Gottwald ASC is addressing new terminals and the conversion and/or expansion of existing terminals. Terminals aiming to incorporate an automated overall solution for transport and stacking can be served ideally by Gottwald AGVs and ASCs working hand in hand. Existing terminals wishing to continue with straddle carriers for horizontal transport can increase stack capacity and productivity with ASCs to hold their own in face of tough competition. And thanks to the company's simulation and emulation software, Gottwald is in a position to provide in advance a true-to-reality picture of future terminal layouts.



Characteristic for Gottwald Automated Stacking Cranes: the innovative rigid, vertically arranged guiding beam for perfect load control, safe operation, fast and accurate positioning even at wind forces of 10 on the Beaufort scale. In the foreground: the quay side interchange zone where the straddle carriers position containers that are then picked up by the ASCs.



The new Gottwald ASC Automated Stacking Cranes and straddle carriers work on the quayside at Antwerp Gateway hand-in-hand. Thanks to the sophisticated Gottwald safety technology, straddle carriers and ASCs can work in the same area at the same time. Consequently, safety authorities have granted approval to allow the simultaneous operation of both types of machines within the interchange zones.



The two stack modules at Antwerp Gateway have been in operation since April 2007. Antwerp Gateway will implement a further 10 cranes for five stack modules in the course of 2008.

Follow-up order by Antwerp Gateway

The Antwerp Gateway Terminal (Belgium) that began service in 2005, and is operated by a consortium headed by DP World, was the first terminal to implement Gottwald's new ASC concept. With the first four ASC cranes for two stack modules, which started operations in April 2007, the terminal has begun to gradually change stack operation from straddle carriers in conventional solutions of up to 1-over-3 containers to ASCs. And following the excellent results, Antwerp Gateway will also implement Gottwald ASCs in the upcoming terminal expansion. A further 10 cranes for five stack modules will be phased into commercial operations as of August 2008.

Within a short period, the ASCs have proven to be very beneficial in terms of productivity, safety, reliability, cost efficiency and environmentally-friendly operation at Antwerp Gateway. And this is attributed largely to a number of groundbreaking features setting Gottwald's concept apart from others.

Fully new concept

Gottwald's new ASCs working as so-called 'twin ASCs' on a single set of rail tracks allow a space savings of up to 18 per cent as compared to other known configurations. At Antwerp Gateway, in each module, two ASCs serve a total stack length of 41 TEUs. The 1-over-5 solution, spanning nine rows of containers, provides excellent stack density.

ABOUT THE COMPANY

Gottwald Port Technology GmbH, based in Düsseldorf, Germany and a subsidiary of Demag Cranes AG, is a manufacturer of Harbour Cranes and port automation technology. With a total of some 1,200 Mobile Harbour Cranes sold, the company is world market leader in this product sector. In the field of port automation, Gottwald Port Technology is the only supplier of system solutions that incorporates both the company's own software and hardware. Gottwald Port Technology supplies customers in more than 80 countries and generated revenue of almost EUR 300 million in financial year 2006/2007 with its workforce of about 800.

Particularly innovative is the rigid, vertically arranged guiding beam for perfect load control, safe operation, fast and accurate positioning even at wind forces of 10 Bft., eliminating the need for time-consuming rope adjustments and ensuring longer service life compared with other solutions. Gottwald ASCs operate on an external power source. During operation, ASCs also make use of regenerative power, i.e. the energy produced, for example when the entire lifting system is lowered or the crane is decelerated on the craneway, is fed back into the system.

For the best possible transfer of forces to the rail track system, the ASCs are equipped with two fixed legs, reducing horizontal forces significantly compared to concepts with a fixed and a hinged leg. An innovative brake system, based on solutions used in other Gottwald products, rounds off the multitude of innovative features.

Gottwald's approach with the fix-leg and the classic rail track and sleeper system offers decisive advantages for terminal operators in terms of investment costs for the infrastructure, thus naturally for the entire systems and also maintenance.

Setting new standards

At Antwerp Gateway, the ASCs are used for quay-to-stack and stack-to-quay transport in fully automatic mode, working hand in hand with straddle carriers. The interplay functions smoothly. Thanks to the sophisticated Gottwald safety technology, straddle carriers and ASCs can work in the same area at the same time. Consequently, safety authorities have consented to allow the simultaneous operation of both types of machines within the interchange zones. On the landside, the ASCs are used for transport from and to stack in 'camera software based' semi-automatic mode, working hand in hand with road trucks. Gottwald, as system supplier, delivers a CE Certificate for the complete module, including both land- and waterside transfer zones.

The use of 'twin ASCs' not only guarantees the Antwerp Gateway simultaneous container handling on both quayside and landside, but also allows concurrent operation of both cranes in a confined space as long as the cranes maintain a distance between them of two 20-foot containers when working in parallel. Furthermore, full operation of the container stack module is guaranteed even when one of the two ASCs should break down or must undergo maintenance.

Recognising that automation is entirely dependent upon accurate software, Gottwald has developed and installed a crane and stack management system with anti-collision algorithm for the new ASC which can be integrated without problem into a high-ranking terminal management system.

All in all, Gottwald's new ASC offers the best prerequisites for extraordinarily high productivity, opening up new perspectives and setting new standards in terminal automation.

ENQUIRIES

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