



case study **RHENUS WAREHOUSING SOLUTIONS**

# **AUTOMATED WAREHOUSING: INVENTORY DRONE AT WORK**

**Continuous stocktaking is laborious, hard work, consumes a great deal of time and personnel resources, has now also become quite a dangerous business and is one of the most important tasks at a warehouse.**

Rhenus is planning to support its employees with drones to enable automated stocktaking in future. The global logistics specialist is conducting trials with the inventory drone known as inventAIRy® X made by the Kassel-based start-up 'doks. Innovation' at its warehouse in Rodgau in the federal state of Hessen. It checks empty spaces and pallet labels almost autonomously – and supplies valuable stocktaking information in this manner. The long-term goal of this forward-looking pilot project is to fully automate inventory procedures.

Is the right pallet at the right place and are all the empty spaces really empty too? Stocktaking at a B2C warehouse is an indispensable, but particularly time-intensive and physically challenging task. Rhenus is therefore looking for alternatives. Help is coming from the air: Rhenus Warehousing Solutions is testing the inventAIRy® X inventory drone from doks. Innovation at its warehouse in Rodgau in Hessen. The Kassel-based start-up was founded near the Fraunhofer Institute for Material Flow and Logistics (IML) in 2017.



### **Inventory drone provides efficient stocktaking information**

During the current pilot phase, inventAIRy® X is primarily being used in two buildings in the warehouse at Rodgau to check empty spaces in a protected environment. Shoes are put into storage and made available here on six levels. With the help of an automated guided vehicle (AGV), the drone flies to the pallet spaces needing to be checked within a shelf gangway and takes high-resolution photos. As a result, it is able to record the current situation and enable an assessment of the labels. Software transforms the photos into useful data. After flight time lasting up to 20 minutes and having completed about one third of a gangway, the rechargeable battery has to be changed before the drone can be reactivated at the next starting point.

Rhenus is then planning to test the new successor model, inventAIRy® XL, which introduces many other benefits. The drone, which is linked to the AGV by a cable, then navigates its way through the gangways independently. When it has been flying for up to five hours and its rechargeable batteries have been almost completely used up, it flies to its docking station for recharging independently. “In this way, the inventory drone could provide us with a summary of the correct occupancy rate in the warehouse on a regular and permanent basis in future,” says Isabel Moeller, Junior Project Manager at Rhenus Warehousing Solutions. “This also creates smoother operations when handling orders, as any errors are eliminated at an early stage.”

## Automating manual stocktaking for greater productivity and flexibility

The drone could handle an absolutely essential, but hardly value-adding process in future warehouses – stocktaking. It still sometimes takes place at dizzy heights. “We’re testing the technology directly in our own warehouse environment in order to identify its potential for our business unit and so that we can make any changes at an early stage,” says Theresia Teigelkamp, Innovation Manager at Rhenus Warehousing Solutions. Using a drone increases the level of flexibility at the warehouse, because being tied to fixed times and assets like fork-lifts, pallet trucks and lifting platforms is no longer relevant. More frequent, automated stocktaking would also increase the data quality in the warehouse - and have positive effects on all the subsequent processes.

## On the way to automated warehousing

Rhenus is primarily preoccupied by the issue of how warehousing management can be improved by using forward-looking technologies. Working with the robotics company, ‘doks. Innovation’, the logistics specialist is gradually optimising automated inventory operations. “We don’t view the technology as a ready-made solution, but we’re developing something with the start-up that can be used in our processes – tailor-made, as it were. Our adaptable approach is enabling us to use a great deal of flexibility, achieves results quickly and is effective,” says Innovation Manager, Theresia Teigelkamp, explaining the system. Trust and open-mindedness characterise the cooperation arrangement,

for the project partner too. “This, coupled with the necessary portion of boldness, is enabling us to continue developing our solutions in line with needs,” says Benjamin Federmann, CEO and co-founder of doks. Innovation. “We view Rhenus as a genuine pioneer in the field of digitalising logistics processes. The sense of enthusiasm for and the trust placed in new technologies are expressed in the professional support and the high degree of readiness to become involved on the part of all the operational employees.”

Efficient stocktaking measures by inventory drone - this is how Rhenus is pressing ahead to shape the future of logistics. Once both the pilot phases with inventAIRy® X and its successor model XL have been successfully completed, the next milestone will involve extending the technology to other Rhenus business sites. If the technology proves its worth, other highly promising fields of application could follow – for example, transporting items by drone at the warehouse site is one idea being considered by the logistics pioneer.

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