

# VACCYBOT

An efficient solution for automated vaccination  
of broiler breeders



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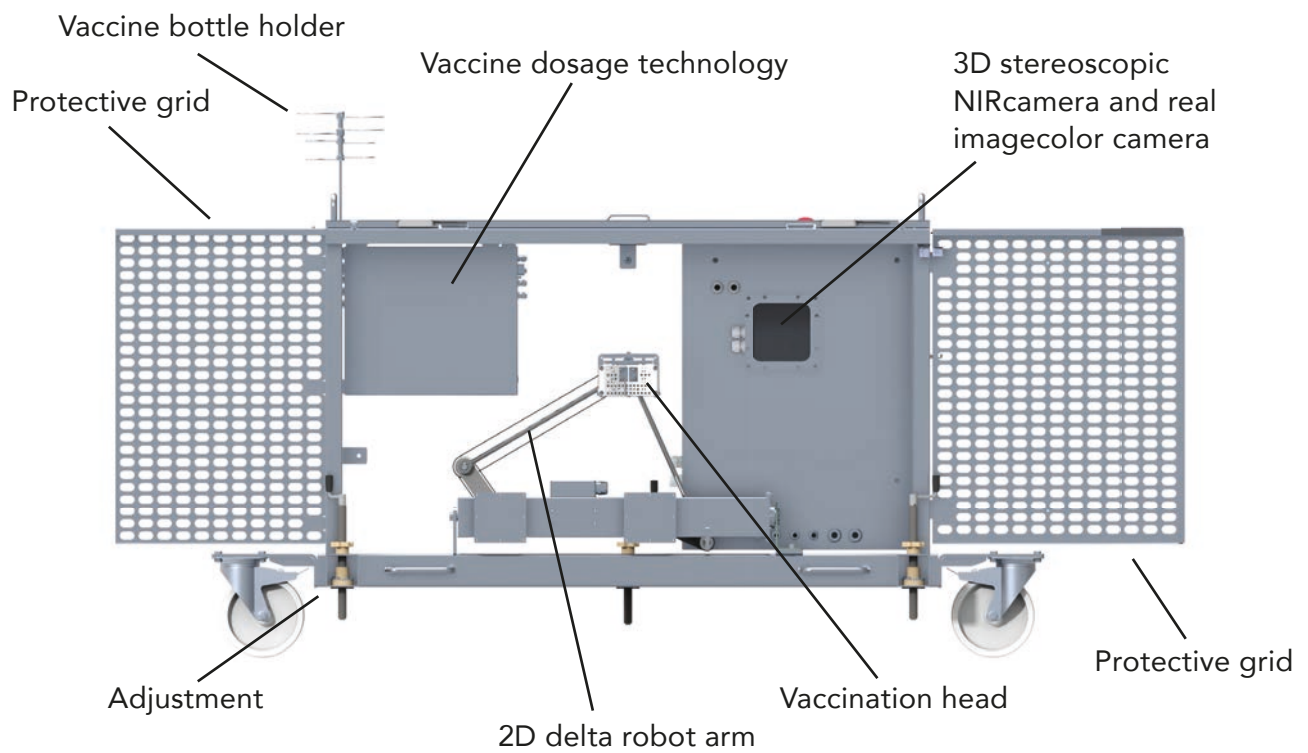
Vaccybot is an innovative vaccination robot, introducing automatization to broiler breeder rearing. Developed in cooperation with veterinarians, the device is the ideal solution for optimizing the vaccination process in poultry farming. Designed to minimize stress for birds and optimize the workflow, Vaccybot automates the vaccination process, ensuring accuracy and efficiency, while adhering to the highest standards of animal welfare. This device is capable of vaccinating up to 2,800 birds per hour in a single run, making it a perfect fit for large-scale operations. Vaccybot is designed with mobility in mind – it is compact, easy to transport, and simple to set up, fitting effortlessly into daily operations.



## Key Benefits of Vaccybot



- + Automates the vaccination process for reliable and repeatable results
- + High capacity: vaccinates up to 2,800 birds per hour
- + Mobile and compact design for easy transport between barns
- + Quick and simple setup with user-friendly controls
- + High-quality materials and easy handling meet the highest hygiene requirements
- + Ergonomically designed to reduce physical strain on workers
- + Total working time savings of up to 76% with integrated weighing and grading process
- + Cost-efficient operation: reduces labor costs and improves vaccination accuracy
- + Use of state-of-the-art technology guarantees precise injection
- + One-time handling of the animals (weighing/ sorting and vaccinating) for more animal welfare and less stress



# Vaccination

## A crucial step for healthy flocks

Effective vaccination is essential to maintaining a healthy and productive flock. By preventing diseases and reducing mortality, vaccination directly impacts overall flock performance. Vaccybot ensures each bird is vaccinated with precision, minimizing potential sources of error and enhancing the effectiveness of the vaccination program.

With Vaccybot, the vaccination process is smooth and efficient, reducing the need for manual handling. This protects the health of the birds and also improves their welfare by minimizing stress during the procedure.

Vaccybot achieves a total working time saving of up to 76% through the seamless integration of the grading process, allowing for greater efficiency and optimized operational flow.



patented  
device

# How does Vaccybot work in detail?

made by



## Operating System

Vaccybot's operating system combines precision engineering with advanced technology. At the core of this system is the high-precision vaccination head, which is anatomically adapted to the birds. It ensures accurate delivery of the vaccine. The vaccination head is completed by a series of cutting-edge sensors and positioning systems that guarantee each bird is perfectly aligned for a smooth and efficient vaccination process. In addition to the vaccination head, the system features a 2D Delta robot arm with 6 axels as well as an automated transport mechanism that easily guides the birds through the vaccination line. This system is engineered to handle large volumes efficiently, maintaining a steady pace that reduces bird stress.

## Vaccination Process

Vaccybot uses an intelligent software concept in order to ensure optimal vaccination. By recording a reference bird at the beginning, Vaccybot identifies the poultry with a 3D stereoscopy NIR camera and a real image camera. A digital twin is constructed as a 3D point cloud. The intelligent algorithm generates the region of interest using iterative combinatorics and defines the injection points.

The target positioning of the needles for vaccination is conducted by the robot. When the bird reaches the correct position for vaccination, the needles are inserted with force determined by the bird's size. Vaccybot continuously learns and adapts during the operational process, ensuring that the needle placement becomes increasingly precise over time, leading to a consistently improved performance. Allowing for adaption to the birds' size and age, the administration of up to six different vaccines through up to four needles is possible.



## Grading and vaccinating in one step

Vacyybot combines grading and vaccinating into one efficient step. Integrated with the GRADY series, particularly the GRADY 3001 and 4000 models, Vacyybot grades and vaccinates birds in a single process. As the birds are sorted, they are immediately vaccinated, reducing handling time and minimizing stress. GRADY's advanced sorting and weighing technologies work in perfect harmony with Vacyybot, ensuring that each bird receives the correct vaccine dose during the grading process. This integration not only enhances operational efficiency by 76% but also maintains high standards of animal welfare by reducing the number of times birds are handled, ensuring a smooth and continuous process from grading to vaccination.

Vacyybot is operated via the intuitive touchscreen interface of the GRADY system, allowing for easy control of the vaccination process and seamless integration into existing workflows. All relevant data can be exported and used to optimize vaccination protocols.



# Vaccybot

## Technical overview

### Vaccination technology

2D Delta robot for positioning the cannulas  
4 driven robot axes  
4 individually usable cannulas  
Up to 6 piston pumps for administering the vaccines  
Position detection using 3D camera in real time

### Automated process

Integrated intelligent image processing to determine the injection points and calculate a motion solution for the robot  
On-the-fly injection on a passing chicken hanging in the GRADY device

### Electric requirements

Motor supply voltage: 48V DC  
Maximum current consumption: 18.5A  
Control supply voltage: 24V DC  
Maximum current consumption: 10A

### Safety requirements

Safety requirements in accordance with the EU Machinery Directive 2006/42/EC

### Control PC

Intel Core i5-6300U  
Processor board sbRIO9607  
667MHz Dual Core Processor incl. FPGA

### Dimensions

Length: 2580 mm  
Width: 780 mm  
Height: 1300 mm (with wheels)  
Weight: 180 kg



# Agri Advanced Technologies: From research to practice.

We are happy to help you with any questions about Vaccybot and advise you according to your needs.

Please contact us at [info@agri-at.com](mailto:info@agri-at.com).

## Technologies for poultry breeding and husbandry

Agri Advanced Technologies GmbH (AAT) founded in 2015 is a subsidiary of the family holding EW GROUP, headquartered in Visbek, Germany. Our main field of activity is the development of specialized application technologies for poultry breeding and husbandry, for example machines for in ovo sex determination of layers, grading and vaccination devices for broiler breeders or technical solutions for feed and egg disinfection.

### Our aim

Our specialized application technologies help customers to further improve animal welfare and health through automated solutions, while also performing efficient production processes.

### Our global network

As part of a global network, we work closely with all stakeholders in the value chain, as well as in research. We regularly cooperate with external institutions such as universities, research service providers, but also agricultural organizations, producers, and commercial enterprises.

### Solutions from one hand

Our solutions encompass the entire process of development, from the idea to the market-ready product. We implement theoretical knowledge gained through research into practical applications and provide a range of solutions for customers all over the world.



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