



Big Dutchman®



PURO

Efficient air cleaning to reduce emissions from pig housing

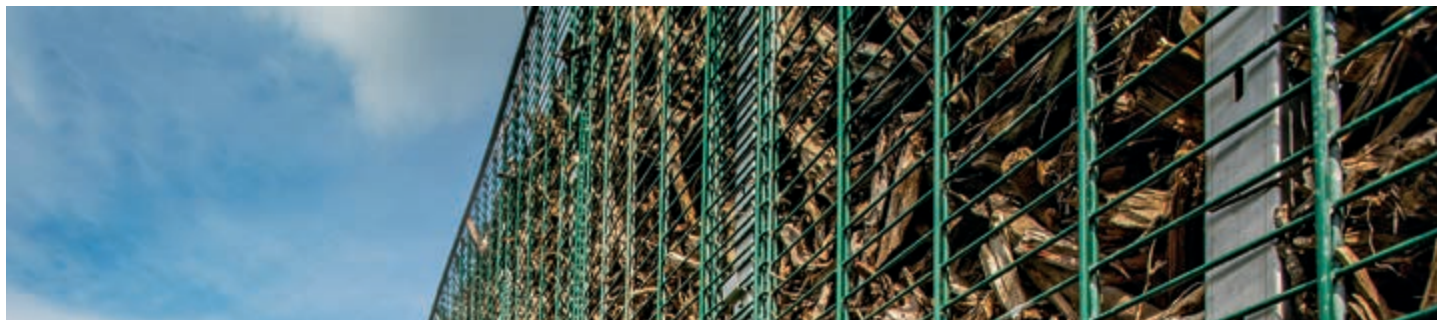
Efficient air cleaning

Separation of ammonia, dust and odorous substances from the house air

Big Dutchman is your competent partner for expert planning and implementation of air cleaning systems. Many years of experience with hundreds of realised projects and the use

of proven and certified air scrubbers enable us to make your pig production ready for the future. Our job does not end with completion of the project. The scrubber remains

functionally reliable in the long term only when it is serviced correctly and regularly.

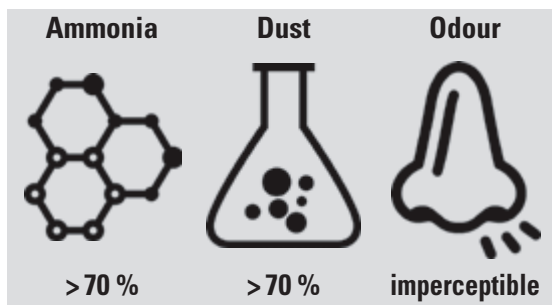


Your advantages at a glance

- ✓ individual planning with an expert;
- ✓ use of a certified air scrubber;
- ✓ permanently high separation rates;
- ✓ easy handling;
- ✓ high functional and operational reliability;
- ✓ reliable monitoring up to and including remote maintenance;
- ✓ cost-efficient operation;
- ✓ qualified maintenance service;
- ✓ expert support during construction planning possible.



Official permission for pig housing often requires the installation of an air cleaning system. Where the planned barn is located near a town or biospheres that may require protection, the importance of reducing ammonia, odour and dust emissions is ever-increasing.



We offer the multi-stage PURO air scrubber to meet your individual requirements. PURO is available in different versions and with different cleaning stages. We recommend deciding together with our experts which system is the best choice for you.

Parameter	PURO			
	DLG	DLG	DLG	DLG
DLG certification	✓	✓	✓	✓
Type of construction	building annexe	building annexe	module	module
Cleaning procedure	biological	chemical	biological	chemical
Additive use	acid / alkali	acid	acid / alkali	acid
Air distribution	centralised	centralised	centralised	centralised
Cleaning stages	2	2	2	2
Additional odour separation	yes	yes	yes	yes
Conductivity of the wash water (mS/cm)	20	>220	20	>220
pH value of the wash water	6.5–7.2	3.3	6.5–7.2	3.3
Water consumption	medium	low	medium	low
Storage of the process water	slurry storage tank	separate tank	slurry storage tank	separate tank

Area of application: pig production / slurry

PURO

Two-stage, biological or chemical air cleaning system

PURO has been certified by the German Agricultural Society (DLG, test report no. 7226). The scrubber achieved the following separation rates:

- ✓ up to 84.4 % of ammonia
- ✓ up to 77.6 % of total dust
- ✓ odour concentration in clean gas $\leq 300 \text{ OU/m}^3$
- ✓ no untreated gas perceptible in the clean gas



In addition to installation in the barn, we also offer PURO as an intelligent modular system. This has the following advantages:

- ✓ easy-to-plan assembly times
- ✓ lower construction costs
- ✓ lower installation requirements
- ✓ single-part plastic housing for reliable and long-term impermeability
- ✓ high resistance to acids, alkalis and process water
- ✓ checked functionality



PURO consists of two cleaning stages. The first stage is a plastic filter bank that is permanently sprayed with water from above. For the biological version, the addition of just a small quantity of sulfuric acid creates a slightly acid environment (pH value 6.5 to 7.2).

Fans press the air that requires cleaning through the filter bank, thus separating ammonia and dust from the untreated gas. The special structure of the filter wall ensures high separation rates with continuous self-cleaning. The second cleaning stage, a

biological filter bank with brushwood filling, significantly reduces odours. Regular moisturisation guarantees a permanent and good functionality.



Fans press the exhaust air into the first pressure chamber and then through the plastic filter



Filter bank (left) and droplet separator (right)



View into the second pressure chamber: droplet separator (left), biological filter bank (right)



Advantages

- ✓ permanently high separation rates;
- ✓ easy handling;
- ✓ reduced water consumption due to cleaning of the wash water and return to the circuit;
- ✓ very little counter-pressure thanks to pH-neutral, automatic desludging;
- ✓ small quantities of acids and alkalis used;
- ✓ easy-to-understand process monitoring;
- ✓ low construction and operating costs.

Control and monitoring

For smooth operation, the following parameters must be controlled and monitored:

- ✓ pH value
- ✓ conductivity of the wash water
- ✓ runtimes of the pumps
- ✓ pressure in both chambers
- ✓ air flow rate
- ✓ temperature of untreated and clean gas

✓ spray pattern

The parameters below are also recorded automatically, helping to keep an eye on operating costs:

- ✓ fresh and waste water consumption
- ✓ acid/alkali consumption
- ✓ power consumption

The electronic operation records are a central

part of the certification procedure and an important instrument for proving stable operation of the system. Additionally, the operator should keep manual records to document the system's condition.



Visualisation of the entire system



Overview of all relevant values



Easy input of operating parameters

An important advantage of PURO's modular design is the technical room with optimal dimensions. This room is pre-installed by the manufacturer. All necessary components, such as the pH value sensor, the conductivity sensor, the meters for measuring fresh water and desludge water, pumps, piping and the control box are cleverly installed for a good overview. Maintenance is thus made very easy. The compact technical room is leak-proof and resistant to acids and alkalis. For secure storage of sulfuric acid or sodium hydroxide, we recommend using double-wall IBC plastic containers. They are available for lease and easy to handle and to exchange. Acid and alkali are added by two automatic dosing pumps based on the pH value of the wash water.



Pre-installed technical room with control box



Acid and alkali dosing

Qualified and reliable maintenance service

A qualified maintenance service is important to ensure that you use your air cleaning system safely, that you achieve high separation rates and that your system has a long working life.

Technical advice, on-site checks if necessary and software updates improve management and reduce the risk of unexpected failures. Within Germany, we are available under the

phone number +49(0)4447-801-4500 or via email: customerhelpdesk@bigdutchman.com.



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