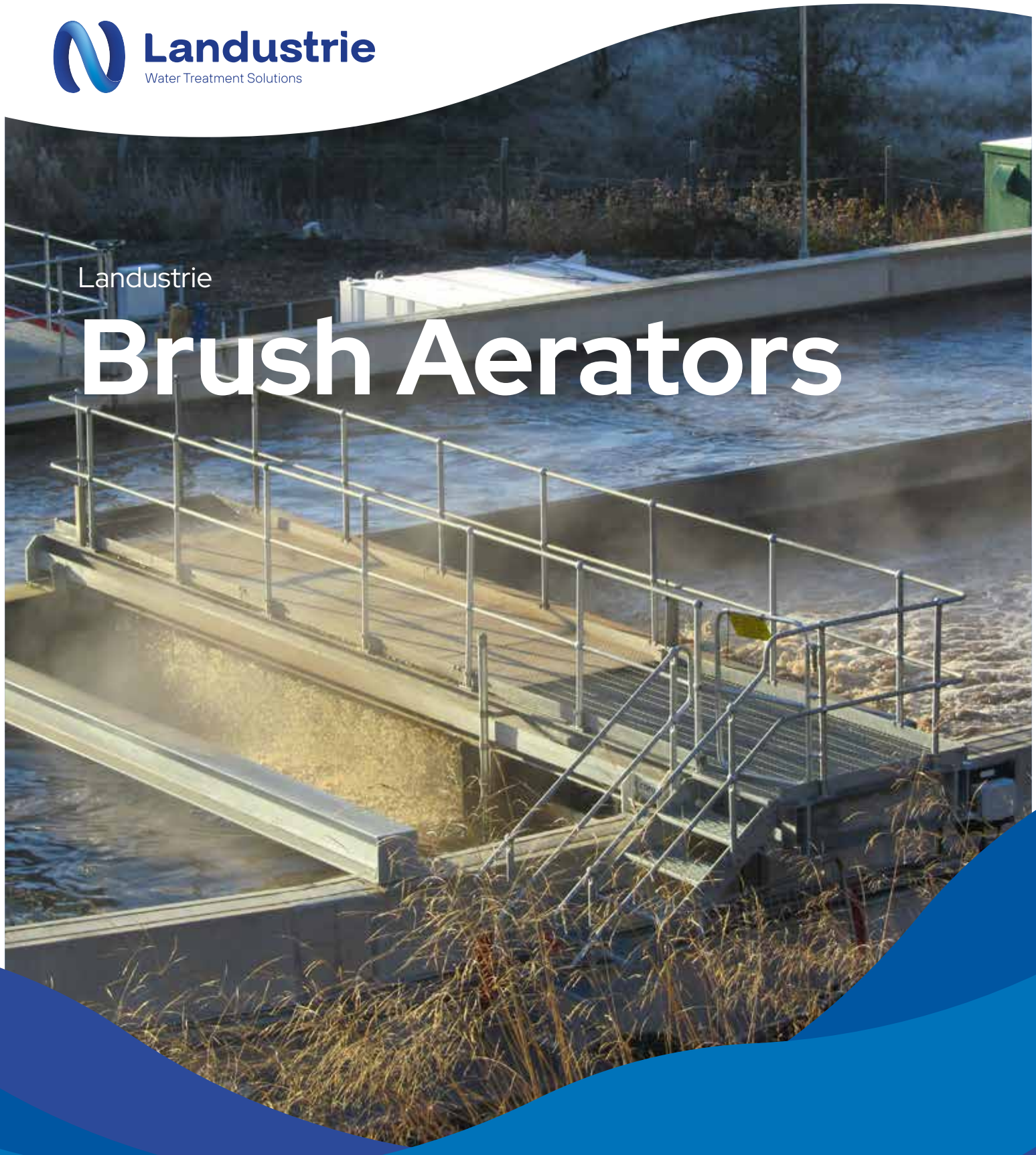
Landustrie
Water Treatment Solutions



Landustrie

Brush Aerators

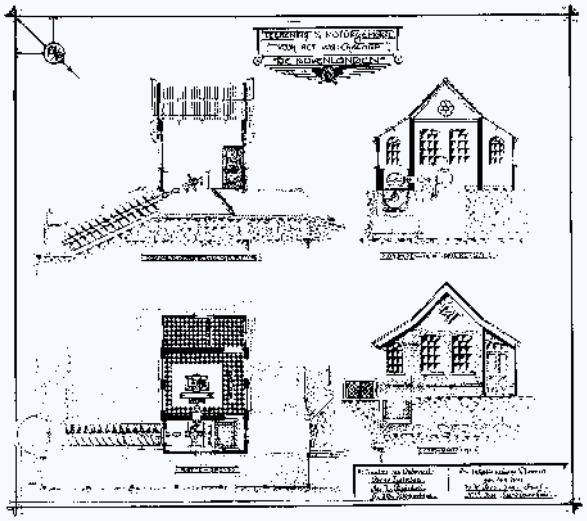
Landustrie is part of Noardling

Over 250 years of experience

2025 : a new name, familiar craftmanship

The journey of our collective "water power" began in 1880 with the foundation of Hubert, followed by the establishement of Landustrie in 1913. Since the early days of our shared history, Frisian craftspeople have been developing sustainable solutions in our water world. In 2011, the addition of Desah's innovative capabilities further strengthened our commitment to reliable quality.

Now, we begin a new chapter together. Noarding combines the strength of three brands: Desah, Hubert, and Landustrie. This enables us to supply futureproof water technology solutions across the entire water cycle.



Landustrie brush aerators

We are a world-leading wastewater aeration solution provider, with extensive knowledge and experience, and an enviable track record.

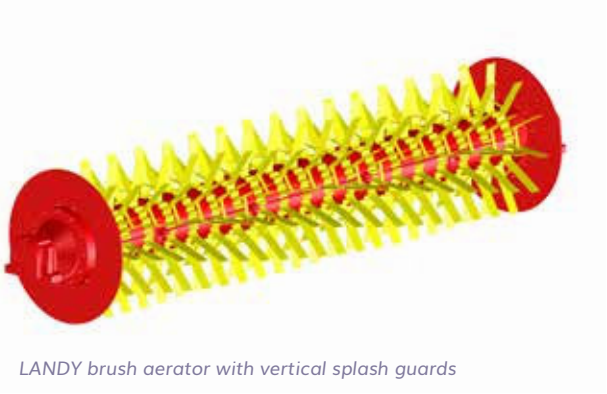
For over half a century we have designed, manufactured, supplied, installed and maintained fine bubble aeration systems and surface aeration systems, including low-speed surface aerators and brush aerators.

As a leading manufacturer of aeration systems, we have developed two brush aerators designs, the Landustrie 700 and Landustrie 1000, giving you greater choice for aeration, mixing and propulsion.

Brush aerator mounted underneath steel bridge

Introduction to aeration

Wastewater aeration is the process of introducing atmospheric oxyen into wastewater to facilitate the aerobic bio-degradation of pollutants. The activated sludge process is the most common form of aerobic biological wastewater treatment. This popular process relies on aeration to promote the rapid reproduction of micro-organisms that break down organic matter in the wastewater. Aeration also raises dissolved oxygen levels in the final effluent which in turn helps sustain plant and animal life in the receiving rivers and lakes.



LANDY brush aerator with vertical splash guards

Sustainable solutions

Landustrie brush aerators have the highest possible aeration efficiency and a service life of up to 30 years, making them highly sustainable and low in energy consumption. This results in a reduced carbon footprint and the lowest possible total cost of ownership.

We can help you achieve a truly sustainable wastewater treatment process by combining many years of aeration engineering experience with professional project guidance. Our specialists provide expertise from conceptual design through to commissioning and start-up, thus ensuring an environmentally friendly, sustainable and economically viable solution.

Research & development

Even though we manufacture the most durable and efficient brush aerators available today, we never rest. We own an in-house test laboratory where new concepts are developed into tried and proven products.

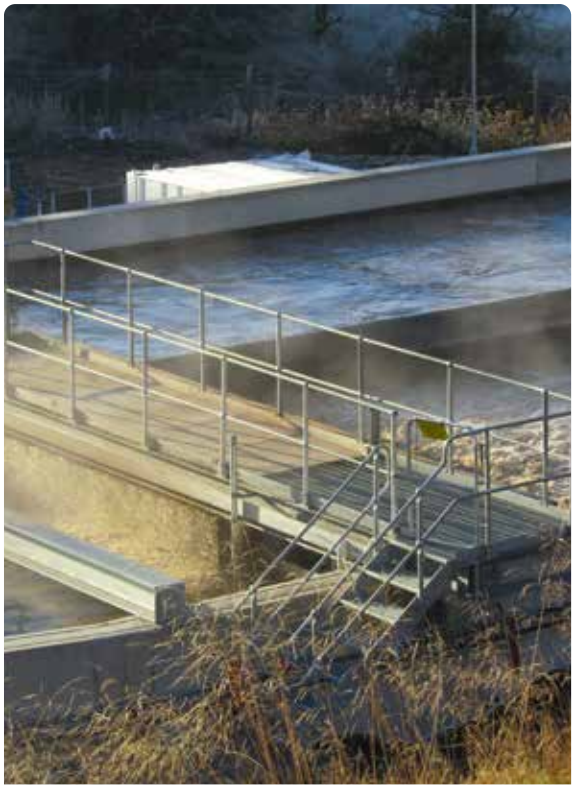
Not only is the Landustrie 700 brush aerator an advance on the well-known cage rotor, but the Landustrie 1000 is the higher-efficiency result of further research and extensive testing. You can rest assured that the Landustrie brush aerator specified for your requirement will perform as expected - thanks to our extensive knowledge, many years of experience, and rigorous in-house development and testing.

Design

Landustrie brush aerators operate more efficiently and cost effectively than similar products made by other manufacturers.

The aerator consists of a seamless, hollow steel shaft onto which are clamped multiple star-shaped rotor blades. Each blade is offset from the previous blade to form a spiral pattern around the shaft. This reduces 'tramping' and undue bearing load as the aerator rotates in water, ensuring reduced noise and shock-free operation. The rotor blades are made of either hot dip galvanised steel, or AISI 304 or AISI 316 grade stainless steel. If required, the brush aerators can be supplied with access platforms and/or inspection covers for ease of inspection and maintenance.

Our qualified engineers use ingenuity and creative engineering to tailor the conceptual design to your site-specific requirements. During the design process, Our engineers use finite element analysis (FEA) software to calculate any stresses on the brush aerator and civil structures, thus ensuring a robust and reliable installation.



Operation

Brush aerators are horizontal shaft surface aerators used for oxygen transfer and directional mixing in wastewater treatment. The Landustrie brush aerator's rotor introduces oxygen into the water by creating intensive turbulence at the phase boundary between the wastewater surface and the air. The rotor also induces a strong directional flow pattern to ensure thorough mixing of the activated sludge, wastewater and oxygen. This flow pattern allows sedimentation-free operation in basin depths of up to 3.55 m. In deeper basins of up to 8 m, mixing should be supplemented by additional flow inducers with an intermittent mode of operation. Splash plates are mounted on either end of the rotor shaft to minimise splashing onto the bearings and drive unit. GGuide baffles downstream of the brush aerator are often specified to ensure uniform aeration and mixing down to the tank floor and to maximise efficiency.
The scope of Landustrie brush aerator projects can be tailored to your requirements. For example, including an access bridge and inspection covers to facilitate offsite pre-fabrication, quick and safe installation, and ease of inspection and maintenance.

Manufacturing

To maintain the highest quality standards, all our brush aerators are manufactured at our factory in Sneek, The Netherlands. The 15000 m2 state-of-the-art manufacturing facility is well-equipped with the latest technology and produces brush aerators with diameters of 700 mm and 1000 mm, in lengths of up to 9 meter.

From metal forming and welding, to applying corrosion protective coatings and paint, and through to final assembly, each step of the manufacturing process takes place under our roof, and most importantly, under our quality control regime. Our capabilities include X-ray and ultrasonic tests to ensure that our brush aerators remain robust and reliable for decades to come.

Aeration efficiency

Landustrie 700 and 1000 brush aerators have a guaranteed oxygenation efficiency, largely depending on the rotor length, the immersion depth and the rotational speed. The table below shows the oxygenation capacity and oxygenation efficiency (SAE) of the Lanudstrie 700 and 1000 at the maximum rotor length of 9 m, maximum immersion depth of 300 mm and rotational speed of 72 rpm.
Both options are available in rotor lengths to suit your site requirements, up to a maximum length of 9 meter.

Aeration control

Oxygenation capacity and mixing power can be controlled by varying the water level (and therefore the immersion depth of the aerator) and/or by adjusting the speed of rotation. The water level and immersion depth of the aerator can be controlled by manual or automatic adjustment of the outlet weir height. Variable Frequency Drives (VFDs) are a common method of adjusting the speed of rotation.

By matching operation to demand, energy efficiency and treatment performance can be optimised.

version	diameter (mm)	rotor length (mm)	oxygenation capacity (kg O_2/hr)	oxygenation efficiency (kg O_2/hr)
Landustrie 700	700	9000	54	1,8
Landustrie 1000	1000	9000	85	2,0

Applications

Our brush aerators are used worldwide. They are deployed in both municipal and industrial wastewater treatment plants, including those of the food, pharmaceutical and petrochemical industries. Landustrie brush aerators can be installed in a number of different tank configurations including rectangular, square and round aeration tanks, sludge stabilization tanks, oxidation ditches, carousels, annulus tanks and equalization and buffer tanks.
Float-mounted brush aerators are also available, being suitable for use in sequencing batch reactors (SBRs), MBR systems, and treatment lagoons. The state-of-the-art float assembly consists of two parallel floats spanned by a robust platform, sized to suit the particular brush aerator model. Benefits of this compact design include good stability, easy 'trimming', and cost-effective packaging and transport. For a small license fee, the float assembly can be anufactured locally to the Landustrie design, thus saving on labour, packaging and transport costs.

~ Landustrie Brush Aerators

Simple and robust

We utilise finite element analysis (FEA) software to achieve a simple and robust construction without over-engineering. For example, FEA allows the aerator blades to be manufactured from the optimum gauge for each different grade of steel. Landustrie brush aerators are industry leaders in build quality; this is clearly manifested by their superior reliability and longevity. Gearboxes are typically designed with a service factor of ≥2.0, which well exceeds most specifications and alternative designs. Landustrie brush aerators are provided with long-life bearings which reduce the maintenance frequency and achieve operational savings.

Consulting engineers

Significant energy savings can be achieved when aerator operation is based on the actual load received by a treatment plant rather than on the original design parameters. It is very important that operational efficiency is optimised, as between 60% and 80% of the power consumption at a typical wastewater treatment works can be attributed to aeration.

At design stage, wastewater treatment process calculations are commonly based on the maximum predicted load to the plant plus an allowance for population growth in future years, and then further multiplied by a peaking factor and/or safety margin. Aeration system designs are then based on these predicted, and often inflated, figures.

But what happens if the actual load is much lower than the predicted load, or if the population growth doesn't come about as first thought?
By adjusting the aeration system operation to match the actual plant load, the aeration efficiency can be improved considerably.

This allows for energy savings of up to 30%, resulting in a reduction of energy costs and of the carbon footprint. Our software compares the operation of brush aerators to the actual treatment plant load, thus optimising the aeration process and improving efficiency and durability. We are your partner for technical advice in view of achieving the highest operational efficiency.

Low noise

All designs of brush aerator generate sound, both from the mechanical drive (~20%) and from the interaction of the blades in the water (~80%). If noise restrictions apply, Landustrie brush aerators can be supplied with noise suppression covers and splash reducers.

Installation & commissioning

Our engineers are renowned for their quality workmanship. Even in challenging conditions, our installation teams deliver the desired outcomes within tight timeframes.

If your preference is to use in-house or local labour, the installation can be overseen by one of our supervisors who will ensure that the installation is done to a high standard.

Our supervisor can also oversee commissioning and start-up of the brush aerators to ensure optimum performance and a long service life.

Refurbishment

We can restore the quality, performance and reliability of any screw pump installation, including those delivered by other manufacturers. This could also lead to a more cost and energy efficient installation than what was originally supplied.

The refurbishment route always starts with an analysis of the current system demands and status of the installation. Then either renovation of the current pump screw and parts will be advised or (a partially) renewal.

The end result will be the same, an upgraded pump screw installation, running at high(er) efficiency and ready to serve you for the years to come!

After sales

Our aftersales service department is your lifelong connection with our company, not only for spare parts but also for training, installation supervision, commissioning and start-up.

Decades of experience designing, manufacturing, operating and maintaining brush aerators makes us the ideal partner for after sales support for all makes of aeration rotor.

For more information:

AFTERSALES@NOARDLING.NL

Expertise

We have been involved in aeration technology for more than half a century and in more than 60 countries worldwide.

This has given us a wealth of knowledge and experience, and the capability to design robust, efficient and optimized aeration systems.

Our experience extends from single 3 kW aeration rotors to large scale projects with 8 or more 4 kW aeration rotors.

Maintenance

Our maintenance team provides both preventive maintenance and, where required, corrective maintenance. Spare parts are available for prompt dispatch to your site so as to maintain your brush aerator's serviceability.

Landustrie
Water Treatment Solutions

Landustrie is part of Noardling

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Our Water Cycle

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Noardling
Futureproof Water Technology

The Noardling company is engaged in Futureproof Water Technology. With more than 250 years of experience in moving and treating of water.

Noardling brands:

Desah
Decentralised Wastewater Solutions

Hubert
Water Screening Solutions

Landustrie
Water Treatment Solutions

version 20-03-2025