



Surface Aeration



Spaans Babcock
Aeration

General

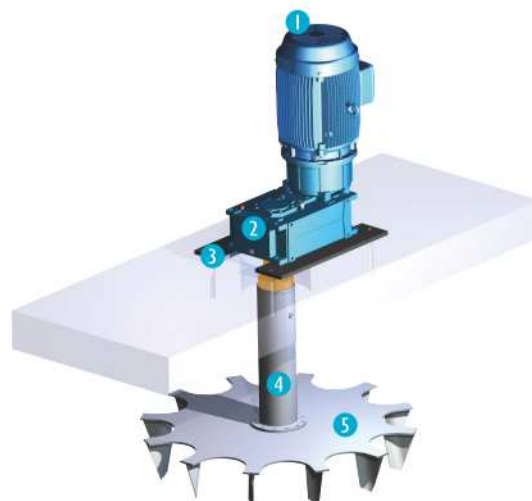
In 1960 Spaans Babcock started with the production of different types of surface aerators. Modern Surface Aerators experienced a renaissance for some years. New developments make Surface Aerators to an economic solution and offer in addition advantages that hardly any other system can realize.

Besides the fabrication, delivery and installation of the aerators, Spaans Babcock has also the knowledge to help or assist you with the process and product design.

Worldwide more than 3000 surface aerators, such as the O2 Max aerator have been installed on municipal sewage treatment, and industrial waste water plants.

Advantages

- Extremely reliable
- High aeration efficiency
- Non clogging
- Low maintenance costs
- Low vibrations
- Low upthrust and radial force
- Low investment costs
- Long lifetime
- No problems in adhesive or DS containing sludge; pulp and paper industry, breweries, dairies, sludge digestion/stabilization
- Stable efficiency during whole lifetime



Components

- 1 Electric Motor
- 2 Gearbox
- 3 Foundation plate
- 4 Shaft tube
- 5 Impeller



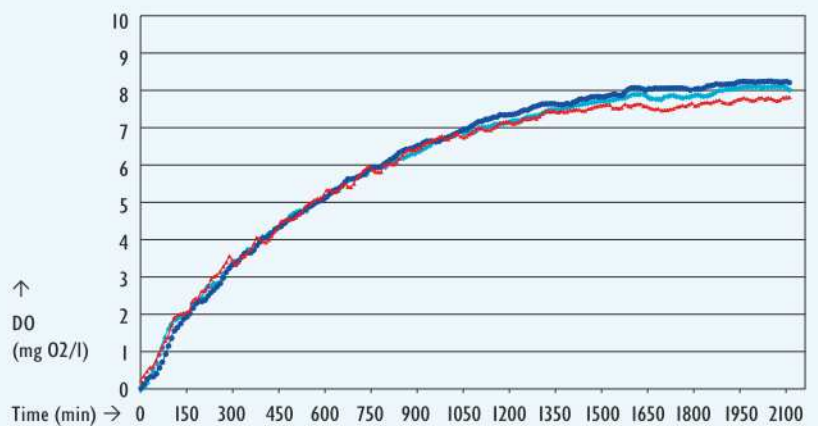
Testing

As an addition the Spaans Babcock products can be delivered with full guarantee, performance or durability test. The high quality standard of our products is always proven in the optionally chosen FAT or SAT.

The Spaans Babcock aeration product line can be categorized as high efficiency products where there is often no need for additional mixing gear. The test method is based upon removal of dissolved oxygen (DO) from the water volume by sodium sulphite followed by re-oxygenation to a minimum of 80% of the saturation value. Full scale test in accordance with European Norm EN12555-15 2003

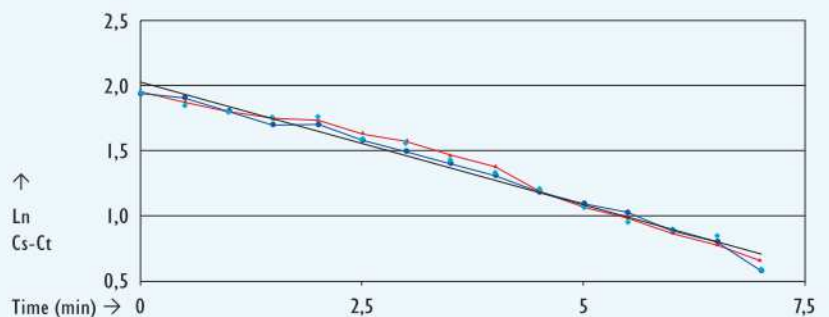
DO vs time OC test I

Probe 1  Probe 2  Probe 3 



Ln Cs - Ct versus time

Probe 1  Probe 2  Probe 3 



Data logger



DO
dissolved
oxygen

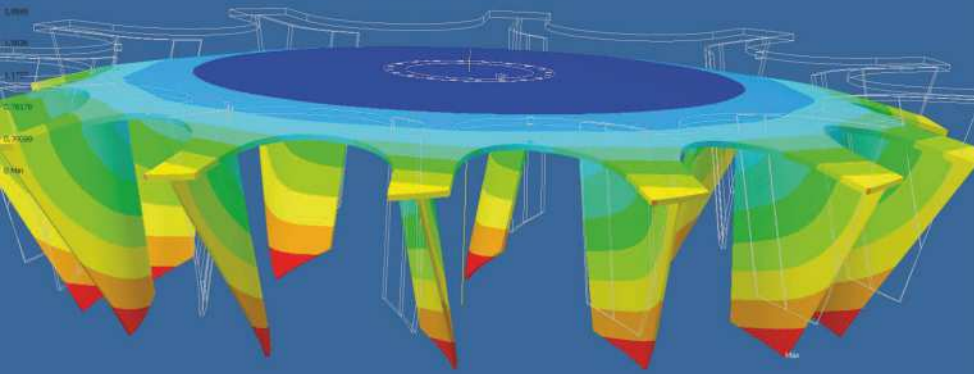


pH
alkalinity



μS
conductivity

O2 Max



Design

The design of the impeller reduces the forces exerted by the water; the related frictional forces are therefore very low compared to traditional cone shaped surface aerators. The up-thrust is substantially lower than the weight of the impeller. This ensures a quiet and vibration free operation which results in a longer life time of the drive unit and a reduction of the forces on the civil structure. The blade is designed such that it is non-clogging. This prevents particulate build-up on the aerator blade thereby reducing maintenance costs. Whilst maintaining a high efficiency the oxygen versus power input are adjustable over a full range of immersion depths and speed.

Flexibility

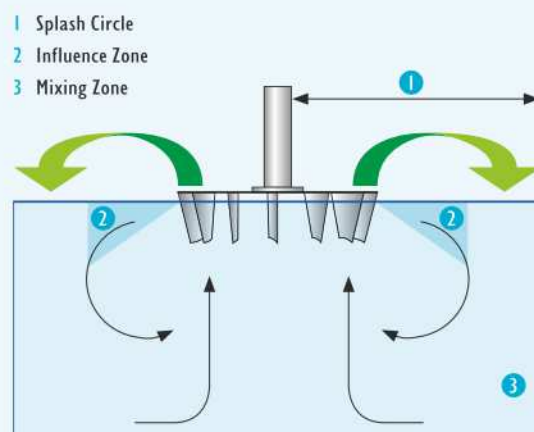
The excellent mixing and propulsion capacity allows the O2 Max to be applied in all types of aeration systems such as complete mix, SBR, oxidation ditches and lagoons.

The O2 Max can be supplied in 2 different options:

- either as a fixed arrangement for mounting on a concrete or steel bridge
- or as a floating unit.

Finite element analysis

Secures a quality product without any unbalance or operational failure





O2 Max Floating Aerators

Ideal for lagoon and aerobic digester applications. Aerated lagoons can reliably produce an effluent with both biological oxygen demand (BOD and TSS < 30 mg/L if provisions for settling are included at the end of the system.

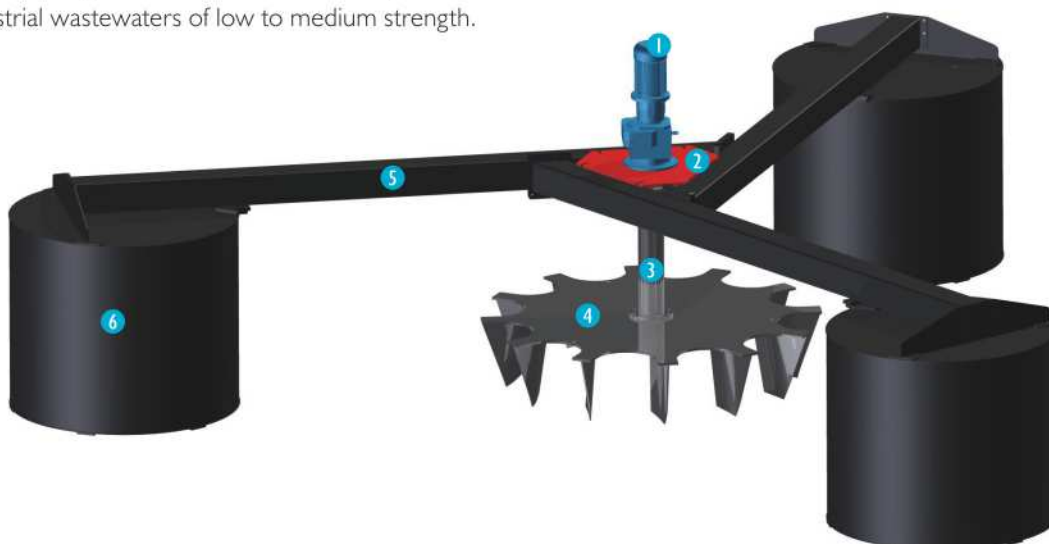
Ponds or basins using floating surface aerators achieve 80 to 90% removal of BOD with retention times of 1 to 10 days.

The ponds or basins may range in depth from 1.5 to 5.0 metres.

An aerated lagoon is well suited for municipal and industrial wastewaters of low to medium strength.

Advantages

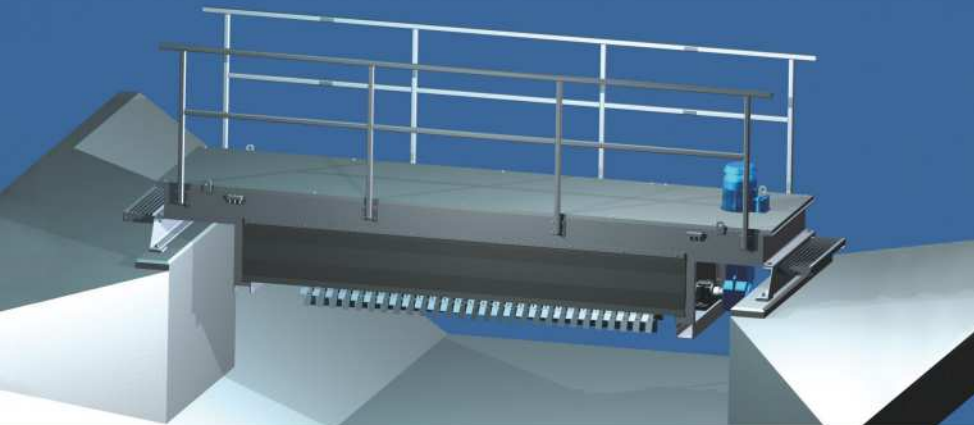
- Long term power savings
- High mixing efficiency
- Solid construction
- High life expectancy > 20 years
- Low maintenance
- Simple to install
- Minimal floc shear
- Prevents 'short circuiting'



Components

- 1 Drive Unit
- 2 Foundation Plate
- 3 Shaft Tube
- 4 Impeller
- 5 Float Arm
- 6 Float

O2 Rotor



The Spaans Babcock O2 Rotor horizontal surface aerator consists of a tube/shaft with typically designed flights, to give maximum performance, clamped and bolted around the tube. Adjacent assemblies are staggered to ensure that adjacent blades do not contact the water surface at the same time. This staggering ensures the forces generated are reduced resulting in less vibration and increased bearing and gear life.

In most cases it will be necessary to improve the performance of the flow and oxygen transfer with the usage of flow baffles.

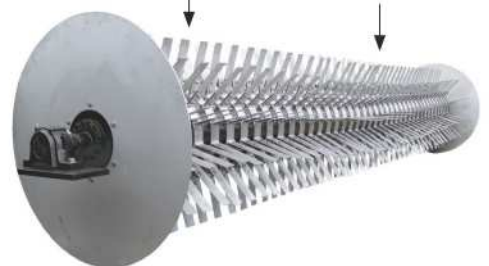
The use of splash covers will give extra protection for the surrounding area, reduce noise and aerosols and protect the rotor from ice when the temperature drops below zero degrees Celsius.

Bridge O2 Rotor (BBR)
'Plug & Play' system



Steel rotor blades are robust, have a better resilience to communal and industrial waste water, and a better resistance to deformation than plastic.

Steel rotor blades are not sensitive for UV and aging of the material



Advantages O2 Rotor

- High oxygen efficiency
- Outstanding propulsion capacity
- Smooth operation
- Clog free design
- Low maintenance
- Universally adaptable
- Weather resistant
- High corrosion resistance
- Long life expectancy



A Spaans Babcock O2 Rotor can easily be mounted by a local workforce and does not necessarily require any specialist from the manufacturer.

No complex coupling system and therefore a more flexible interchange ability of parts such as couplings and bearings. Spare parts for the Spaans Babcock O2 Rotor are therefore less expensive.

Perpendicular shaft gearbox BBR



Perpendicular shaft gearbox



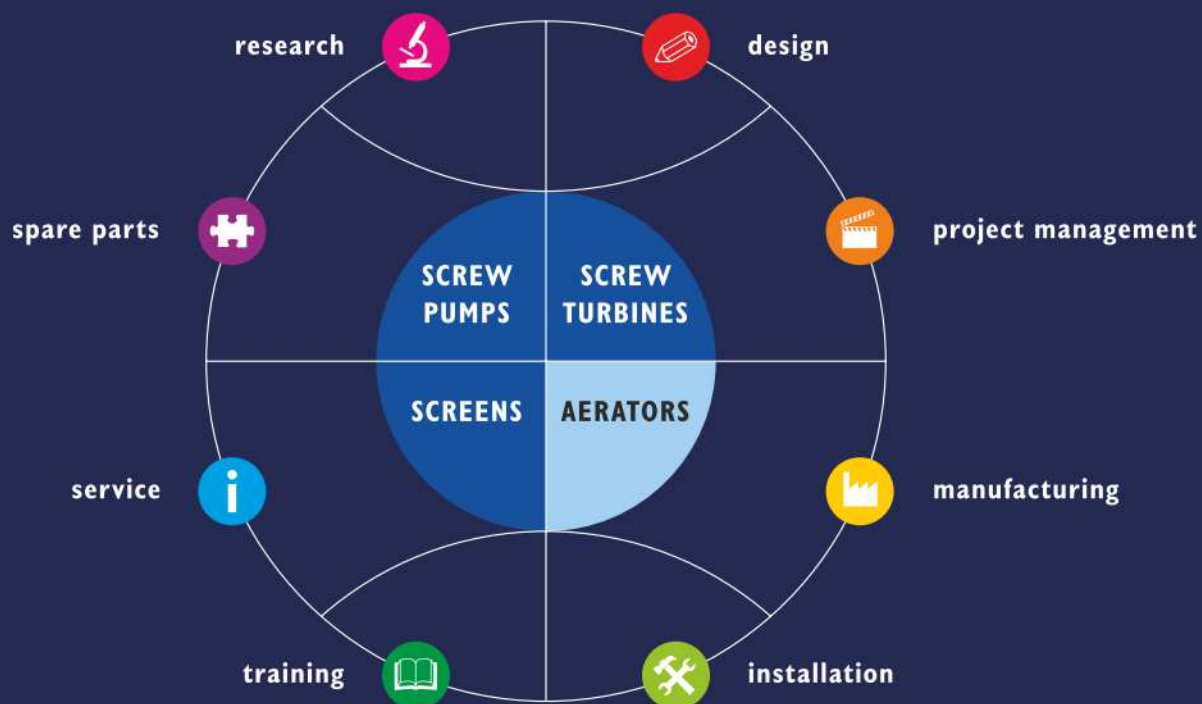
For the fixed mounting position of the O2 Rotor we offer you the following possibility's.

Parallel shaft gearbox



Coaxial shaft gearbox





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